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See also Pages ii, iii, 479.

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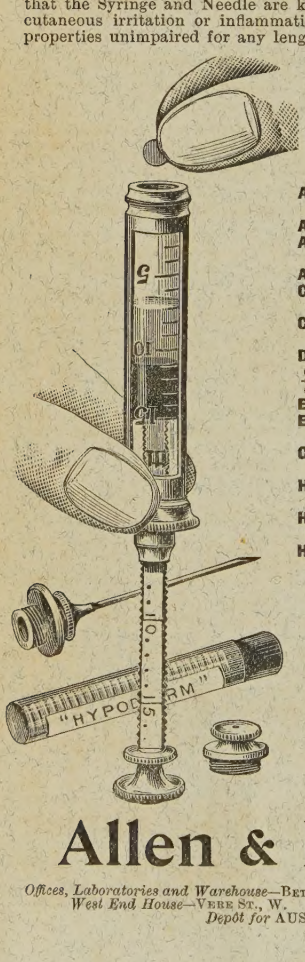

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Digitalinum gr. $\frac{1}{100}$.
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Atropinæ Sulphas gr. $\frac{1}{100}$.
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See also Pages i, iii, 479.

☞ It is not infrequently necessary for children to be taken from the breast owing to insufficient supply or poor quality of the mother's milk and to be fed entirely or in part by bottle. In such cases it is of the greatest importance that the food supplied should be easy of digestion and not likely to cause gastric or intestinal troubles, which are so liable in children to end fatally. While there exist many foods of more or less value for the use of children of more than seven or eight months of age, hitherto there has been no food which could safely be given to infants from birth up to the age mentioned. As a rule, cow's milk, more or less sterilised and diluted with water, barley water or lime water, and sweetened, has been given, but through ignorance or carelessness of nurse or mother the baby often fails to thrive, and though it may pull through and live, its constitution is permanently weakened. Influenced by these and other considerations ALLEN & HANBURYS have instituted a series of experiments under the advice and direction of physicians specially skilled in the ailments of children, and are now able to offer to the profession certain foods adapted on sound physiological principles for rearing infants from birth up to six or eight months of age, after which time ALLEN & HANBURYS' well-known "MALTED FOOD" answers admirably.

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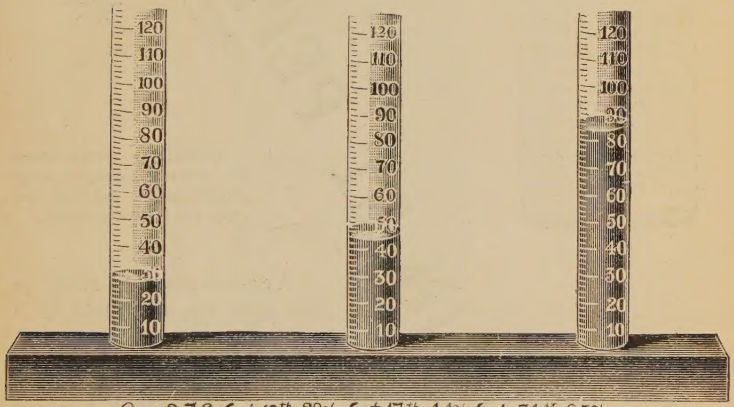

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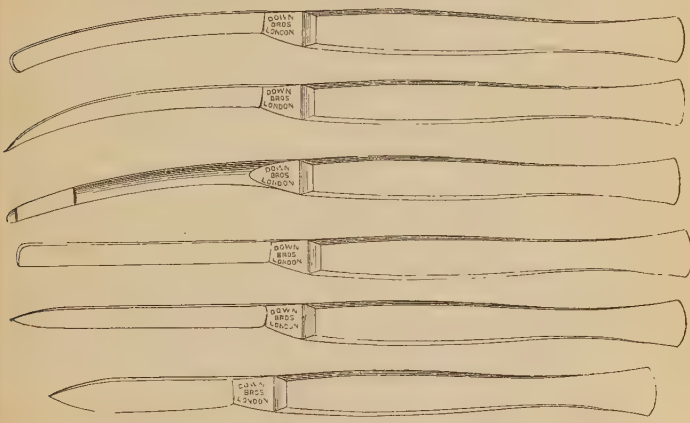

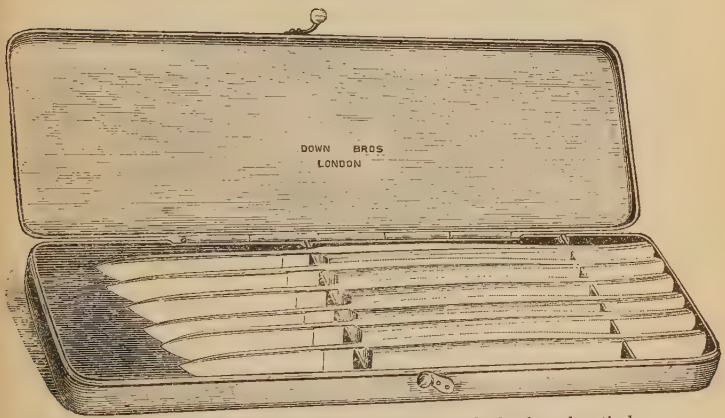

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CONTAINING A RETROSPECTIVE VIEW OF EVERY DISCOVERY AND PRACTICAL IMPROVEMENT IN THE MEDICAL SCIENCES.

EDITED BY

JAMES BRAITHWAITE, M.D. LOND.

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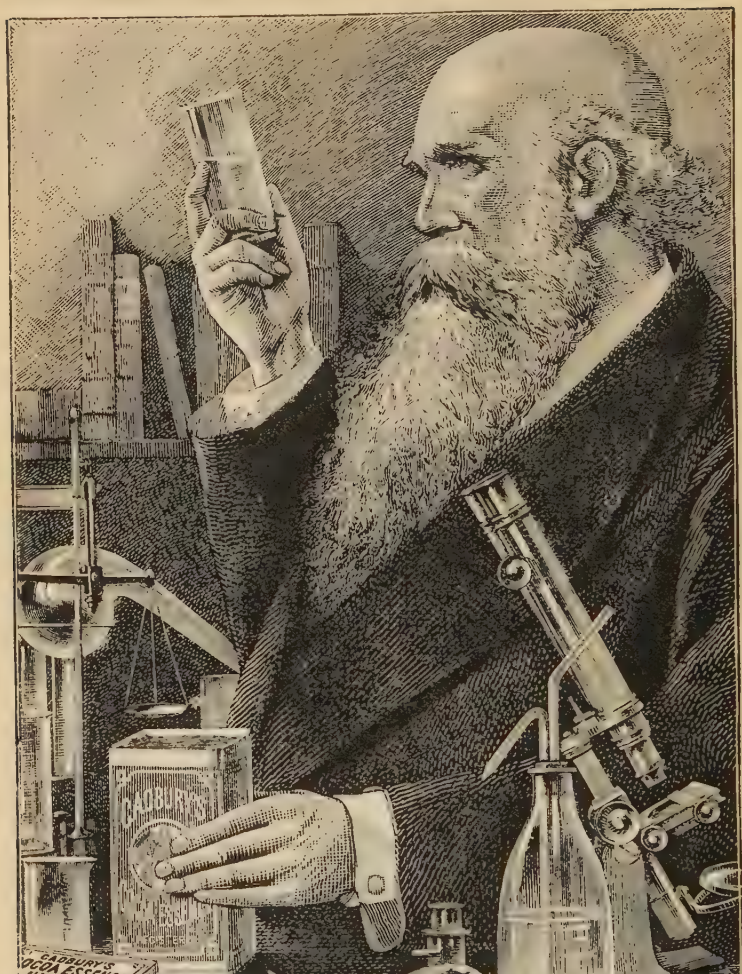

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—*Lancet*, Jan. 7, 1893.

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Synopsis.

An Abstract of the most Practical Articles in this Volume, with other Short Articles from the Medical Journals, showing the most important indications of Treatment, published by different writers during the half year.

Arranged Alphabetically.

GENERAL MEDICINE AND THERAPEUTICS.

ANTIPYRIN RASHES.

Professor Eichhorst records two recent cases of exanthem produced by antipyrin. In May a soldier, twenty-eight years of age, was admitted into hospital, presenting all the characteristic signs of enteric fever. Three days after admission, large patches resembling measles made their appearance—first over the lateral aspect of the abdomen, on the next day very abundantly on the neck and legs, especially the thigh. The face was only slightly involved; the mucous membranes were free. The rash remained for seven days, and disappeared by gradual and slow paling of the skin without scaling. On seeing it for the first, Eichhorst considered it as due to antipyrin, and this view, notwithstanding the patient's repeated denial, proved to be the correct one. Only when the rash had paled and almost disappeared, did the patient confess that seven days before admission he had received two powders from a druggist for feverishness. One he had taken; the other was kept, and turned out to be pure antipyrin weighing about seven grains. It is noteworthy that a strong well-developed man should exhibit a very extensive and obstinate exanthem after a single dose of antipyrin; and still more remarkable that it should occur on the tenth day after taking the drug. Under such circumstances Eichhorst speaks of a late antipyrin exanthem. In contrast to this is an observation of an early rash of antipyrin and a recurrence in the same case. The patient was a medical student, twenty-three years of age, who passed through an attack of enteric fever last summer. Shortly before he was taken ill he was prescribed fifteen grains of antipyrin, and one hour after its administration there appeared an extensive rash in large patches, which remained but a few hours. Four days later there occurred for the second time

a pronounced eruption resembling measles, though the patient had been treated in the interval with phosphoric acid and warm baths; and this lasted several days. The recurrent rash was in small patches.—*Therapeutische Monatsheft*, No. 8, 1892. (The Practitioner, April, 1893, p. 293.)

CHLORALOSE.—A New Hypnotic.

MM. Hanriot and Charles Richet have published a careful monograph on the physiological action of chloralose, the chemical compound resulting from the action of chloral anhydrate on glucose. It is a white crystalline body, slightly soluble in cold water, easily in boiling water, with a bitter taste and strong hypnotic action. A long course of preliminary experiments on cats, dogs, &c., showed that the sleep which it produced was not accompanied by the deadening and depressing effects of chloral. The authors then tried its effect upon themselves when in a normal state; and, beginning with cautious doses of two grains, they found that a dose of six grains gave them a very sound sleep with no sequelæ of diarrhœa, dyspepsia, or headache. As much as twelve grains was taken once, which, after twenty minutes, brought on a deep sleep of six hours with no discomfort but a trace of subsequent tremor; another dose of twenty grains induced a much longer sleep but no malaise. The best mode of administration was found to be by small capsules each containing a grain and a half, or larger ones containing three grains, which are quickly absorbed and make their hypnotic influence felt in half an hour or three-quarters. To children the powder may be easily given in milk. Notes of the results have been furnished by several Parisian physicians. M. Landouzy during eight months used it on thirteen patients, who were all neurasthenic and without fever or organic disease, and all bad sleepers, to whom the ordinary sleeping draughts were useless. In eleven cases comfortable refreshing sleep was obtained with doses of four to nine grains; sometimes four or five hours' good sleep was obtained with a dose of four grains at 11 p.m., and two or three hours' more after a second dose of three grains in the early hours of the morning. In a few instances there was slight headache or vertigo for an hour after waking; in two women in whom neurasthenia was severe there was no success, but the drug was followed by headache, nausea, faintness, and irregular action of the heart. Some patients took it every night for six weeks, some every other night, and M. Landouzy records his opinion that its results were, on the whole, decidedly better for such cases than those of chloral. In seven other cases where there was much pain it was of doubtful advantage. M. Paul Marie tried it in a series of twelve patients with insomnia from various causes—phthisis, typhoid fever, bronchitis, and

emphysema, &c. The results were good in most of the cases, even with doses as small as three grains; but in two alcoholic cases of insomnia four grains gave little or no relief, and morphine was considered preferable. M. Moutard Martin gives a detailed account of eight cases in the Hôpital de la Pitié on whom he had tried it in doses not exceeding six grains with very good results, even in two cases of alcoholic insomnia and the pains of subacute articular rheumatism. There were no sequelæ of discomfort. M. Ch. Ségard gives equally good reports of its effects in one case of neurasthenia and two of chronic valvular disease of the heart; but he found it of comparatively little use in the pains of gout and neuralgia. In a case of paralysis agitans a dose of ten grains was given which was followed by heavy sleep, but at the same time increase of muscular tremor. All the physicians who have tried chloralose agree that it has no bad effect, either irritant or constipating, on the digestive tract. —*Comptes Rend. Hebdom. de la Soc. de Biologie*, p. 1, January 20, 1893. (The Practitioner, March, 1893, p. 214.)

CHOLERA.—Treatment of, in the Altona Hospital.

Dr. Du Mesnil has had under his observation about five hundred cases during the last epidemic. To destroy the bacteria *in situ* he administers calomel in seven-grain doses twice in the course of two hours, following with grain doses every second hour, believing this to be of more value than salol, creolin, or other cresol preparations. Further antisepsis he obtains with Cantani's tannin injection (10 : 2000). To meet the indication presented by the abstraction of water from the tissues and thickening of the blood and the resultant symptoms, he employs the sodium chloride infusion injected into the veins. He stimulates the heart, when it is required, with camphor, makes use of baths, 90° to 96° F., and relieves vomiting and muscular cramps in legs by morphine. The mortality, excluding the cases of diarrhœa when the diagnosis was not established, was fifty-eight per cent. —*Münchener medicinische Wochenschrift*, 1892, No. 41, S. 722. (The American Journal of the Medical Sciences, Jan., 1893, p. 89.)

Cholera.—Treatment of.

A. Lazaraff and A. Przedborski (*Vratch*, No. 34, 1892) speak highly of cocoaine as a means of inhibiting vomiting in cholera patients (℞ Cocaini hydrochlor., gr. iii ; tinct. menth, ℥ ij ; ten drops every half hour). In cases of moderate severity they obtained fairly good results from calomel with salol, as intestinal disinfectants. They begin with eight-grain doses of the former drug and ten-grain doses of the latter, and repeat the powder in an hour ; subsequently they give from half to two grains of calomel with ten grains of salol every two hours, for one or two days.

In ten cases they tried Cantani's enemata of tannic acid, which invariably arrested, or at least markedly diminished, diarrhœa; in eight out of the ten cases, however, typhoid symptoms supervened, to terminate in death. Of 98 cases treated by the writers, 45 (46 per cent.) ended fatally. Of the grand total, 34 cases were moderately severe; of these, only four (12 per cent.) succumbed. The remainder, 64, were very severe; of this number, 41 (74 per cent.) died, eighteen of whom were admitted in a hopeless condition.—I. A. Skvortzoff (*Meditzinskoïe Obozreniïe*, No. 19, 1892, p. 712) who observed 281 cholera cases, of which 123, or 43·7 per cent., ended in death, says that (1) vomiting can sometimes be controlled with striking rapidity by the internal use of calomel in large doses (0·5 gramme); (2) diarrhœa is quickly arrested by tannin enemata (one ounce to a tumblerful of water); (3) cramps are relieved by friction with linimentum volatile (or with nettle, after the method in vogue among the Russian peasantry); (4) anuria is successfully removed by blisters to the loins. Opium is avoided by the writer, as he believes that it promotes the retention of the cholera virus in the system.—I. A. Blagovidoff (*Vratch*, No. 34, 1892) has tried blisters to the neck along the course of the vagus in cholera, with the result that both vomiting and hiccough ceased.—D. Tzitrin (*ibid.*) resorted to painting the region with cantharidine collodion in four cases; the vomiting was stopped, but the hiccough was aggravated. (Epitome of the British Medical Journal, February 11, 1893, p. 23.)

Cholera Bacillus.—The Viability of on Various Food-Stuffs, &c.

Uffelmann in a recent number of the *Berliner klinische Wochenschrift* (1892, No. 48) records the results of an interesting investigation of the viability of the cholera bacillus on various food-stuffs and other necessaries of life, made with a view to gaining some definite information as to the danger of transport of the germs upon these substances. The experiments test the viability of the bacilli in water and milk, on bread, in butter, on meat, fish, vegetables, and fruits of various kinds, on paper, on coin, on both moist and dry clothing, and on his own skin. The possibility of the transport of the contagium by flies is also investigated. Material from two cholera stools, both shown to contain large numbers of comma bacilli, was mixed with or spread upon these various substances, and inoculations of nutrient media were made at short intervals from the contaminated areas. In water the bacilli remained viable for from five to six days; in milk, for about three days; on the surface of bread exposed to the air, for about a day; between slices of bread kept more or less moist, for eight days; in butter, for three days; on cooked

meat kept moist, for eight days; on apple and cauliflower, for four days; on paper, for about a day and a half; on copper and silver coins, for only ten minutes after thorough drying; on dry clothing, for four days, but on moist linen for twelve days or even longer. It was shown that for two hours after walking through cholera dejecta, house-flies were capable of infecting nutrient media, and that the dry skin of the hand preserved the germs alive for somewhat more than an hour after contamination. These results are of much practical interest as showing the length of time during which contaminated food-stuffs may continue to be infectious. They also teach that the organic acids of milk, meat, fruits, butter, and sour bread do not cause immediate destruction of the cholera bacilli, and that the duration of their viability bears a general relation to the degree of moisture in the contaminated substance. (The American Journal of the Medical Sciences, March, 1893, p. 357.)

CODEINE SULPHATE.

Mr. Joseph W. England makes mention of the fact that this remedy is an extremely prompt sedative in affections of the respiratory tract, possessing an advantage over morphine in that it does not check the secretions, nor does it lead to a habit, nor has it disagreeable after-effects. It will indeed alleviate pain. The dose varies from one-eighth to one-half, and exceptionally, one grain, given in pill or in solution, frequently in syrup of wild cherry. The officinal alkaloid is rarely used, the sulphate being more frequently prescribed. If administered in water an insoluble residue is sometimes found, which, on examination, was proved to be the alkaloid codeine found in codeine sulphate from the excessive heat employed in concentration of the solution for crystallisation.—*American Journal of Pharmacy*, 1892, No. 3, p. 120. (The American Journal of the Medical Sciences, August, 1892, p. 209.)

DIABETIC GANGRENE.—Amputation.

At the Royal Medical and Chirurgical Society, October 29th, 1892, Mr. R. J. Godlee read a paper on Amputation for Diabetic Gangrene. He said that his excuse for bringing some rather ordinary cases before the Society was that the term "diabetic gangrene" was made to include several different conditions now beginning to be recognised, and also that modern surgical improvements had modified our views with regard to amputation for this disease. Diabetics were more liable to gangrene, when once started, than others for several reasons, but the determining causes were the same as in other forms of gangrene. These were inflammatory conditions, including carbuncles, noma vulvæ, and rapidly spreading ulcers of the legs, as well as extensive

sloughing of septic wounds ; atheroma of vessels and peripheral neuritis, which was now generally recognised as being caused by glycosuria, and as giving rise to many neuralgic and other symptoms. The object of the paper was to point out that the so-called diabetic gangrene in most cases depended on one or other of these conditions. If the former, progress of the disease was rapid and the pain was great ; if the latter, the pain was insignificant or absent and the progress slow. The former must be treated by amputation at or above the knee, because it had been shown that in these cases the degeneration almost always reached the knee, but very often did not extend further; the latter might either be left alone or treated by amputation close to the necrosed part. The following cases were illustrations of these facts. (1) A man of forty-eight, who had partaken freely of alcohol for many years. Gangrene started from a sore by the nail, and proceeded rapidly on to the dorsum of the foot. A circular amputation was done above the knee, and the patient made a good recovery. The vessels from the part removed were shown, and it was seen that the degenerative changes were very far advanced and extended as high as the popliteal artery. Microscopical sections of the vessels were also shown. The patient was present. (2) A man aged sixty-one had gangrene of the little toe caused by a corn. A line of demarcation formed and amputation was done through the dusky tissues close above the spacelated part. The wound was left quite open and the patient made a good recovery. (3) A lady, aged seventy-three, had gangrene of one toe, not very painful, and starting from a suppurating corn. The toe separated and the wounds healed after several incisions had been made in the sole and on the dorsum of the foot. (The Lancet, October 29, 1892, p. 994.)

DIPHTHERIA.—Tracheotomy for.

Habs (*Deutsche Zeitschr. f. Chir.*, Band xxxiii., Heft 6) reports 572 cases of tracheotomy for diphtheria, with 316 deaths, or a mortality of 55¼ per cent., extending over a period of six years, and showing a decrease of nine per cent. between the first and last periods of three years each. The operation was most seldom performed in April, May, June, July, and August, and during these months the percentage of mortality was likewise the least. It increased gradually from that time, reaching its maximum in March, then decreasing. The average length of treatment was sixteen to twenty days. The most children died in the first five days after the operation, nearly as many dying on the fourth day as on the day of operation; then the danger decreases till the eighth or ninth day, when pneumonia is to be feared as a cause of death. A relatively good prognosis can therefore be given in those cases in which the patient passes the fifth day, except where

intercurrent complications appear. The best cases are those in which, after the operation, the breathing is free, no membranes are found, the pulse good, fever slight, and little albumin is present in the urine; while those cases are unpromising in which the breathing is not free, where slight retraction of the chest walls continues, and deep-seated membranes or a tendency to pneumonia are present—yet they are not hopeless, and, on the other hand, even in the most hopeful cases there are the secondary sequelæ to be feared. The mortality is very high in the first two years of life, then falls, rising again during the sixth and ninth years to forty per cent., and after the tenth rising to fifty-nine per cent.; this is to be accounted for by the severe type that attacks older children. There is a greater percentage of deaths among male children than among female, and also more males are attacked by the disease. (The American Journal of the Medical Sciences, January, 1893, p. 100.)

Diphtheria.—Hydrogen Peroxide in.

Dr. Francis H. Williams presents a very valuable contribution to our resources in treating this formidable disease. The problems are to kill the bacilli within a few seconds, and to do this without harm to the patient. These conditions fulfilled, it would be necessary to find the means of bringing the peroxide to the vital point, and to preserve the solution. To cleanse the throat merely, and as a gargle, a fifteen-volume solution (2·4 per cent.) will answer, but when the membrane is thick and tough, it is necessary to use a solution from fifty to two hundred volumes (8 to 32 per cent.), in order to have it efficient. As soon as the peroxide touches the dead tissues it begins to decompose into oxygen and water, attacking and disintegrating the membrane, and so opening up the way for farther germicidal action. A special atomiser and syringe is designed, the former somewhat resembling the Rumbold spray tube, with which applications can be made as often as required. The syringe can be used for a day or so, from one to three times, and afterward the spray will be generally sufficient. The stability of the solutions varies much, according to their strength; in a cool, dark place, or in a refrigerator, the time of permanency is prolonged. The two hundred volume will keep for six days in a refrigerator, with a loss of only eight volumes. He summarises as follows:—1. The peroxide of hydrogen has the unique and necessary quality of disintegrating the membrane, and thus rendering the bacillus accessible. As it only attacks the dead organic matter the healthy tissues are not lacerated, as is the case when mechanical means are used to remove the membrane. 2. The acid peroxide of hydrogen solution is an effective germicide against the bacillus of diphtheria, and is not toxic

to the patient. 3. The syringe is simple in construction; it can be kept perfectly clean, and is not attacked by solutions which quickly corrode metals; with it one can easily reach all parts of the throat which are to be seen without a mirror.—*Boston Medical and Surgical Journal*, 1892, No. 127, p. 303. (The American Journal of the Medical Sciences, December 1892, p. 713.)

Diphtheria.—Peroxide of Hydrogen as a local application in.

In the *Boston Medical and Surgical Journal*, September 29, 1892, Dr. F. H. Williams records some observations upon the local use of peroxide of hydrogen in diphtheria. By means of an atomiser or a syringe solution of the peroxide are applied to the membranes. The problem is to treat early to disintegrate and clear off the membrane. In the syringe a 16 per cent. or more often a 32 per cent. solution should be used, applications being made, of a few drops each, into and underneath the membrane wherever needed. This should be done daily from one to three times or more often for the first day or two, after which the spray alone may suffice. The spray should also be used in fifty (8 per cent.) or a hundred volume (16 per cent.) strength, once in four hours, although it may be desirable to use it oftener in some cases. Where the membrane yields readily to the spray this may be used at first to clean away as much as possible of it, and the remainder may be cleared by the syringe. The treatment to be effective must be energetic and well carried out in the early days. Besides treating the membrane locally, it is well to use antiseptic prophylactic treatment in the pharyngeal and nasal regions, such as douches or sprays of fifteen volume (2·4 per cent.) peroxide solution or diluted chlorine-water. In applying this treatment it is important to have a good light; a kerosene lamp with a parabolic reflector like a locomotive head-light is good, but by day I prefer to place the patient's head in such a position that when the mouth is opened the back of the throat has direct daylight upon it. A few drachms only of the strong solutions, are required for a patient, as the treatment has to be continued for but a few days as a rule. The strong solutions should not be allowed to come in contact with the skin, as they are irritating, nor with coloured fabrics or the hair, as peroxide is a bleaching agent. The position of the membrane in the thirty-two medical cases that recovered was as follows:—Nine cases on the tonsils only; twenty-three cases on the tonsils and other parts. These cases all had the peroxide treatment. The patients made good recoveries, and there was a notable absence of after-effects. No case that came early to the hospital died. In behalf of the early, local treatment of diphtheria, it

should be stated that the membrane is generally accessible in the beginning. Any local treatment to be efficient must be applied early and at frequent intervals, but the strong peroxide solutions must only be applied by the physician himself. They cannot be properly used by the relatives or attendants. During the first few days, therefore, this takes more of the physician's time than other ways but the course of the disease is much shortened in suitable cases, that is, where the patient is seen early and the membrane is accessible. The point is to concentrate the attack before the patient is poisoned and thus save him from a prolonged illness. Good nursing and proper and sufficient nourishment are not to be omitted. The proper local use of non-poisonous germicides can do no harm except in cases where the patient is too weak to have the applications made, at this stage they are obviously too late to render their best service. (Boston Medical and Surgical Journal, Sept. 29, 1892, p. 305.)

FAT NECROSIS.

At the Pathological Society on October 18, 1892, Dr. H. D. Rolleston showed specimens of "Fat Necrosis" in the fat of the mesentery, the great omentum, and in the appendices epiploicæ. The areas of necrosed fat were of an opaque white colour; in size they varied from a pin's head to half a split pea; in shape they were round or oval. They were not raised above the surface and were not surrounded by an area of congestion. The contents of these opaque spots gave the reactions of fat. Microscopically the areas were composed of fat cells distended with granular material, which was in places crystalline; the nuclei of the cells did not stain; these areas were immediately surrounded by normal fat cells; some of these areas of fat necrosis showed some small cell proliferation at their margin, but usually on one side only, and near a small vessel. The specimens were taken from two cases under Dr. Cavafy's care in St. George's Hospital; the first case was chronic, the second very acute. In the first case a woman aged fifty received a blow on the abdomen, which was followed at once by pain and the next day by severe vomiting, inaction of the bowels and collapse, simulating intestinal obstruction. The vomiting continued and slight diarrhœa came on. An abscess developed in the right hypochondrium three weeks and a half before death, which took place eighty days after the injury. Post-mortem there was found an abscess in the head of the pancreas and fat necrosis in the subperitoneal fat. The liver was in a condition of fatty infiltration, but there was no necrosis of the fat globules. In the second case a man thirty years of age had suffered from an injury to his abdomen eighteen months previously, by a cart passing over him. Since then he had had severe attacks of

abdominal pain. After his dinner he was suddenly seized with abdominal pain, vomiting and collapse, accompanied by constipation. Laparotomy was performed, and death occurred thirty-six hours afterwards. At the necropsy hemorrhage was found round the pancreas, the origin of which was not manifest. There was disseminated fat necrosis in the abdomen, but there was no evidence of pancreatitis. In neither case was there any fat necrosis in the fat of the thighs or of the abdominal wall. The author said that there were two theories :—(1) That the fat necrosis was a primary change in the fat of the fat cells, which set up a surrounding inflammation, which, becoming confluent around the pancreas, produced changes in, and often ultimately necrosis of, that organ (Langerhans). (2) That pancreatitis, hemorrhagic, suppurative or gangrenous, or pancreatic hemorrhage was the primary lesion which by extension produced fat necrosis (Fitz). Dr. Rolleston said that neither of these hypotheses was very satisfactory, and that he thought that the occurrence of fat necrosis might be explained as a trophic lesion, the result of the morbid process spreading from the pancreas to the solar plexus. This view was supported by the clinical symptoms, which were those of great disturbance of the sympathetic (vomiting, collapse and constipation), and the distribution of the fat necrosis would fit in with this view. (The Lancet, October 22, 1892, p. 942.)

GRAVES'S DISEASE.—Treatment.

Dr. F. Déléage, for the paroxysms of oppression and palpitation applies ice to the precordial region, and administers digitalis, two and a half grains of the dried leaves, every half-hour for two or three hours. If relief is not obtained before the expiration of three hours, a phlebotomy is indicated. Mentioning the treatment as proposed by Cheadle—tincture of iodine internally, the three bromides, digitalis, belladonna; by Sée—veratrum viride, hydrotherapy, electricity; by Dieulafoy—ipecac, digitalis, and opium, he states that the last method seems to yield very satisfactory results. One-half grain of powdered ipecac, one-third of a grain of powdered leaves of digitalis, and one-sixth of a grain of extract of opium for each pill, of which the daily dosage is four to six. The improvement is usually rapid, the only inconvenience being a diarrhœa.—*Revue de Thérapeutique Générale et Thermale*, 1892, No. 7, p. 97. (The American Journal of the Medical Sciences, August, 1892, p. 209.)

LEAD POISONING.—The Results of Treatment in.

The conclusion to be drawn from two cases of chronic poisoning are: That lead is slowly and more or less continuously eliminated by the kidneys. That once deposited in the tissues it exists as

a stable compound over which drugs have little, if any, power. That the best aids to elimination are baths and general massage, together with fresh air, good food, and all other measures by means of which the general health may be improved and healthy metabolism promoted. Whilst denying that potassium iodide promotes elimination of lead, the possibility of its being beneficial in some other way in cases of chronic lead poisoning is not disputed. (British Medical Journal, Feb. 25, 1893, p. 404.)

[See also article by Dr. J. Dixon Mann "On the Therapeutics of Chronic Lead Poisoning," at page 176 of this volume of the *Retrospect.*]

LIPOTHYMIA.

In the course of his Bradshaw Lecture on the signs of Acute Peritoneal Disease, Dr. Gee said "I will next speak of that marked failure of the vital functions (that is to say, of the circulation, respiration and body heat) which very often accompanies peritonitis. It is a matter for surprise and regret that we have no term in common use to express this set of symptoms. No English word being precise enough, I suggest that we resuscitate the Greek word "lipothymia" to denote *defectio animæ*, this failure of the vital constitution, whether it be attended or not by lipopsychia, *defectio animi*, or failure of the animal constitution marked by coma, delirium, or both. Sudden lipothymia is syncope or swooning; syncope due to injury is shock. Lipothymia is manifested by a small, weak and sometimes irregular pulse, by weakness of the heart sounds, by shallow breathing, by lividity with pallor (deathly paleness), and by algidity or failure of the body heat—at least so far as the skin is concerned; the inner heat, as measured in the rectum, may or may not fail to a proportionate degree. In peritonitis (apart from perforation) lipothymia sometimes marks the whole course of the disease (witness the Wandsworth epidemic, to which I referred a short time since); and when to lividity, coldness of skin and a weak small pulse are added diarrhœa, with watery stools and suppression of urine, the resemblance to cholera is great indeed. But more frequently lipothymia occurs only towards the end of life, and then it may assume, so far as the body heat is concerned, the form of lipyria (another ancient word which might be revived with advantage)—that is to say, while the skin, especially of the limbs, is quite cold, the temperature of the inward parts, as measured by a thermometer in the rectum, is much above the normal; it may be 105°—a very bad prognostic sign in all acute diseases, and a plain proof of the extreme weakness of the circulation. Another sign which sometimes attends this final lipothymia—this mortal agony or struggle with death—a sign which has attracted the notice of

physicians from the earliest times—is the disappearance of pain and suffering whilst the patient remains perfectly conscious; yet all the symptoms of vital failure persist, and he only whose attention is fixed upon the local signs to the neglect of the prognostic condition of the whole patient can be surprised by what will seem to be a sudden and unexpected death. It were curious to inquire into the causes of this cessation of pain, whether it be due to cessation of cramp, whether an anodyne poison be produced in the course of the disease, whether the lipothymia arrests the nutrition of the nerve endings, or whether the sensorium for pain be similarly affected. Still more remarkable, although much less common, is the case of peritonitis attacking a healthy person, lipothymia supervening in the course of a few hours from the beginning, and any local signs of abdominal disease disappearing at the same time. The patient when first seen makes little or no complaint of the abdomen; it is not swollen and can be pressed deeply without causing pain; but the skin is cold, the heart beats very frequently, no pulse can be felt at the wrist, the respirations are very frequent, and the secretion of urine is suppressed. The mind is affected little or much. The patient dies on the first or second day of illness. At the post-mortem examination acute peritonitis is found, but not necessarily perforation of the peritoneum or disease of any other abdominal structure. (The Lancet, Nov. 12, 1892, p. 1087.)

MENTHOL.—Its Anti-emetic action.

Dr. R. Blondel has recognised this action of menthol for the past five years, regarding it, with carbonic acid, as the most surely anti-emetic of those with which he is acquainted. He notes that both of these remedies are stimulants to the stomach, powerful adjuvants to gastric contraction, and frequently employed in moderate dose to stimulate sluggish muscular work of the stomach; that with the use of menthol, nausea and gastric spasm can be stopped at such a point that even ipecac loses its power of producing emesis. He seems to believe that the active stimulant effect of these remedies is produced on contractured muscular fibre. He utilises this property of menthol in the treatment of dysentery by ipecac, when he administers with it every two hours a fifth of a grain of menthol dissolved in alcohol, to which a smaller quantity of saccharin is added.—*Nouveaux Remèdes*, 1892, No. 17, p. 399. (The American Journal of the Medical Sciences, December, 1892, p. 712.)

MYXŒDEMA.—Thyroid Extract.

Mendel (*Münch. med. Woch.*, November 29), reports the results of treatment of a case of myxœdema by subcutaneous injections

of the extract of the thyroid glands of sheep. The patient, a woman, aged fifty-eight, was shown before the Berlin Medical Society four years since as a doubtful case of myxœdema, developing after erysipelas and rheumatism. A month ago, however, the symptoms became very defined : she became very apathetic, with no idea of time or place ; skin waxy-looking and bloated ; eyes almost hidden from swelling of eyelids. There was œdema over the lower part of the neck ; the skin of the hands and feet was thinned, the nails splitting, and the hair lost. The axillary temperature varied from 94° to 97° F. Urine passed in small quantities ; about 215 grains of urea secreted daily. Pulse of small volume ; sixty per minute (formerly seventy). Lower limbs hypersensitive to cold ; hyposensitive to heat. After daily injections of thyroid extract, the patient appears now much better, both physically and mentally. Pulse seventy-two to seventy-six ; urine $2\frac{1}{2}$ to $3\frac{1}{2}$ pints daily ; urea 310 to 540 grains ; temperature 95° to 97° F. ; œdema slightly diminished. (Epitome of the British Medical Journal, December 24, 1892, p. 103.)

Myxœdema.—Thyroid Feeding in.

Dr. Hector Mackenzie, in a letter to the Editors of *The Lancet*, says: The glands I have used were from the sheep, but I do not think it matters whether sheep's, pig's, or bullock's thyroid is used, except that the latter is larger than is required for the purpose. I found both the hospital butcher and my own butcher were quite ignorant as to where or what the thyroid gland was. They knew the thymus by the name of the throatbread, and sent that at first. The simplest plan to get the thyroid was to have the larynx and trachea with the muscles sent entire soon after the animal was killed. As the part is of no value to the butcher, he should be able to supply it for quite a small sum. The thyroid gland can easily be separated from the other parts. In the sheep the lobes are rather smaller than in man and the isthmus is rudimentary. The lobes can be easily distinguished from the muscle by their oval shape and darker colour, although this varies in different cases. I have throughout given the glands raw, except at the very outset, when they were cooked by mistake. I cannot say whether they would have any effect if given thoroughly cooked. That could only be found out by experiment; but I can see no objection to very slightly cooking them—for instance, by frying. It is highly probable that thorough cooking would entirely destroy their effect. The mode of preparation in my case has been simply to mince the gland finely and give it either plain or with a little brandy. The addition of the latter was found to make it more acceptable to my patient, and also diminished the tendency to nausea which

she experienced when she knew she was having something raw. Currant jelly might make it more palatable. As mentioned, I gave my patient two whole thyroids (four lobes) every day at first, but found this was too much, as the pulse rate after a time was much increased. I do not think it will be necessary to give the patient more than one thyroid every other day. Some may prefer to employ a home-made extract of the gland, which may be prepared by mincing up the thyroid, placing it in a mortar with a little crystallised sugar and glycerine, rubbing it up with a pestle, then adding a little water and, after allowing it to stand an hour or two, filtering through muslin or calico. It is, of course, possible that a stable thyroid extract may be obtained which will in practice be found more convenient than the process I adopted. The important point is to have shown that the thyroid gland contains something which, given by the mouth, has as distinctly curative an effect as hypodermic injections of thyroid juice. (The Lancet, October 29, 1892, p. 999.)

Myxœdema.—A New Preparation of Thyroid Gland for. In the thyroid gland chemical analysis, up to the present time, has revealed the presence only of certain proteids and other substances more or less common to the rest of the animal body. The treatment of myxœdema by the internal administration of the thyroid gland of the sheep having proved so successful, it occurred to me that a dry, stable preparation of the thyroid would offer many practical advantages over the crude gland or the glycerine extract hitherto used. In considering the means by which such a preparation could be obtained, I was led to commence operations in the belief that the thyroid might secrete some ferment hitherto unknown. I therefore determined to try whether, by the formation of gelatinous or flocculent precipitates in a liquid extract (which is known to possess the desired activity), the active constituent could be separated from the large amount of proteid and other organic substances present in the fluid. Precipitation with absolute alcohol, salting out the proteids by saturation with ammonium sulphate, and the addition of various substances which produce a precipitate by chemical reaction, were tried. After some experience a precipitate of calcium phosphate was selected for an extended clinical trial. The glands were first exhausted with a mixture of equal parts of glycerine and water. The filtered fluid was then acidulated with phosphoric acid, and calcium hydrate added until an alkaline reaction was obtained. The precipitate was filtered out as rapidly as possible, washed, and dried over sulphuric acid, without heat. The powder obtained in this manner is the substance employed successfully by Dr. Davies in the treatment of the cases exhibited by him at the meeting of the Clinical Society of London on

January 27th last. The dose given was three grains, corresponding to $\frac{1}{8}$ of a gland, and of this about one grain was organic matter, which I propose to investigate more closely. Recently I have been making three grains equivalent to $\frac{1}{6}$ of a gland. I desire, therefore, to record the fact that a process known to be effectual in the case of ferments generally has also proved successful, under the conditions mentioned above, in separating the active constituent from an extract of the thyroid gland of the sheep. This by itself does not prove the correctness of the ferment hypothesis, but further experiments, now in progress, will, it is hoped, determine this point. The evidence in favour of it, apart from the results described in this paper, is only negative; but this is not surprising when one remembers that the function of the thyroid gland is at present unknown. Our ignorance in this respect renders it impossible to imitate the conditions under which the normal activity of the gland is displayed, thus depriving us of the usual means of demonstrating the presence or absence of a ferment. (Mr. Edmund White, F.I.C., Pharmaceutist to St. Thomas's Hospital. British Medical Journal, February 11, 1893, p. 289.)

Myxœdema.—Thyroid Juice in.

At the Pathological Society, on October 18, 1892, Mr. Hurry Fenwick showed two female patients who had been suffering from myxœdema and who had been treated by injections of fresh thyroid juice. Both had improved, and in both the injections had been followed by a gradual increase in the daily average of urine passed. Usually there was a large increase in the urine the day following the injection; the amount then fell, but rose again. The character of this extra urine was essentially nervous in type. There was often a remarkable increase on excitement, such as the visiting of friends, and also during the period of menstruation, and these variations introduced fallacies into the investigation as to how far the injection acted as a diuretic. Control injections of water were without result; also in healthy people the thyroid juice usually proved negative. Mr. Fenwick, after reviewing the details of the cases, was inclined to believe that thyroid juice had feeble diuretic action; that the *rationale* of its renal action in myxœdema was the change it produced in the blood which permitted of an easier transudation of secretion by the kidneys. He founded the latter supposition on the very marked effect which the injections made in the growth of the hair, the secretion of sweat and the catamenial period. The tables of daily urine seemed to favour Mr. Fenwick's belief that congestion of the kidney arose in congestion of the pelvic viscera such as obtains in menstruation, coition, &c. (The Lancet, October 22, 1892, p. 941.)

Myxœdema.—Two Cases treated by Thyroid Extract. The first case, Mrs. T., aged 64, a widow in comfortable circumstances, presented in the end of May of this year all the typical symptoms of myxœdema, which she considered had commenced some five years previously. She was about this time seen by Professor Victor Horsley, who approved of my proposal to try the effect of thyroid injections. Up to the end of September she had received over thirty injections, usually given twice a week. She had lost 19 lbs. in weight, and could with comfort walk three or four miles, in place of about a hundred yards before treatment. She perspires freely on exertion, which she has not done for some years, and, in fact, considers herself to be perfectly well. Since the end of September she has only had one weekly injection, and with this maintains her position, with no further alteration in weight. The second case, Miss T., aged 55, well-to-do, came under treatment in the beginning of September. The symptoms of myxœdema were well marked, the speech very characteristic, hair lost, skin dry and furfuraceous. She had lost all her teeth, and on two occasions had nearly died from hemorrhage after the removal of some stumps. In less than seven weeks after thirteen injections the weight had fallen from 10 st. 5 lbs. to 9 st. 1 lb., there was free perspiration on exertion, the speech was clear and distinct, without the previous hesitation, and the facial expression had greatly altered for the better. She is now going on with a weekly injection, which is being administered by her own medical attendant, Dr. Smith, of Dumfries. In both cases the improvement has been most remarkable. The method of preparation of the extract which I have followed has been somewhat different in detail from that used by Dr. Murray. Usually, on Monday at the killing hour, either I or my friend, Dr. J. E. Gemmell, who has kindly assisted me in this matter, and acted for me in my occasional absence, have gone to the abattoirs here and removed from newly-killed sheep three lobes of the thyroid; these have been placed in a bottle containing ½ per cent. carbolic solution. In the course of the evening the capsules have been carefully and completely stripped, the glands thinly sliced on a sterilised slab, and placed forty-five minims of ½ per cent. carbolic solution in a conical two-drachm measure, this being covered over with a piece of sterilised blotting paper. Next morning the mass is squeezed through a piece of well-boiled cambric, the resulting sixty minims or so of turbid fluid being then reckoned as four doses. The hands and instruments used are always sterilised by heat, or by the use of one in twenty carbolic solution. The syringe being always washed out with the same solution, both before and after use. (Dr. Barron, Liverpool. British Medical Journal, Dec. 24, 1892, p. 1384.)

OSTEO-ARTHROPATHY OF PULMONARY ORIGIN.

H. Schmidt (*Münch. med. Woch.*, September 6th, 1892) discusses the relation of syphilis to this disease. He says that the theory of a pulmonary origin will not hold for all cases, as the following instance shows. A woman, aged forty-eight, noticed swelling of the ends of the fingers, with pain in them, and also thickening about the wrist and elbow-joints. Three months later the fingers presented the typical drumstick appearance. The lower end of both forearms was thickened, and the wrist-joint swollen, but the intervening parts of the hands were not involved. The toes were similarly affected, and the rest of the skeleton being intact. The lungs were healthy. A distinct history of syphilis was made out, and potassic iodide given. Very soon afterwards the swelling of the finger ends began to diminish, and the author gives an illustration to show the great improvement which had taken place in three months' time, Later the patient had a syphilitic ulcer on her tongue. Smirnoff's case is the only one which would seem to have any resemblance to this one. It occurred in a young man, aged twenty-three, who had had a perforating ulcer of the palate three or four years previously. It was supposed to be due to congenital syphilis, and healed under suitable treatment. The same antisyphilitic remedies were, however, without effect on the osteo-arthropathy. The lungs were healthy. In both these cases there was the well-marked osteo-arthropathy of P. Marie without any previous lung disease. Perhaps the syphilitic poison may play the same part as the toxin which is supposed to be absorbed from the pulmonary lesion. (Epitome of the British Medical Journal, October 22, 1892, p. 65.)

PERNICIOUS ANÆMIA.—Transfusion of Blood in.

Dr. Brakenridge, in an exceedingly interesting paper, narrates five cases of pernicious anæmia in which transfusion of blood was used. *Case 1.*—Married female, æt. thirty-four. Had ague between sixteen and twenty-two. Illness of four months' duration, and following upon parturition. In addition, ordinary signs and symptoms of pernicious anæmia, there was marked wasting. Arsenic was ill borne even in two-drop doses. Transfusion was done on four occasions. The indirect method was employed, and the blood was kept fluid by admixture with one-third part of its bulk of a one in twenty solution of phosphate of soda in distilled water at blood heat. Six ounces of blood with two ounces of the phosphate solution were injected at the first operation (July 5th, 1885). The other transfusions were done on July 12th, July 26th, and August 7th, 1885, respectively. There was a marked increase of the corpuscles after each operation,

and the patient's general condition was much improved. For some months she remained fairly well, but ultimately (in a few months) she died of the disease. *Case 2.*—Married female, æt. twenty-five. Admitted in 1888. Duration of disease seven and a half months. She was wasted (six stones seven and a half pounds). Arsenic was given for some time but never in a larger dose than seven minims of Fowler's solution. One transfusion only, of five and a third ounces of blood used in the same manner as in Case 1, was done in this case. There was marked increase in the corpuscles and improvement in her general condition, ending in recovery. She remained well at the end of three years (in 1892). *Case 3.*—Married female, æt. twenty-seven. Admitted November 5th, 1890. She seems to have got rapidly worse in spite of arsenic (dose not given). On November 14th, transfusion (two ounces of blood only) was done, but she died on the following day. *Case 4.*—Parcel postman, æt. thirty-nine. Admitted September, 1891, and still under observation. Transfusion was done on December 17th, 1891 (five and a half ounces), and again on March 9th, 1892 (four and three-quarter ounces). Immediately after the second operation, probably from the use of impure distilled water, the patient had a severe rigour, with vomiting and intense pain in the stomach, the temperature rose to 104°, and the urine contained a considerable amount of hæmoglobin but no blood corpuscles. He, however, made rapid progress after this, and Dr. Brakenridge has no doubt that by rigid attention to every precaution in the next transfusion he will obtain a thoroughly satisfactory result. *Case 5.*—Male æt. thirty-six. Admitted March, 1892. Duration of illness, five months. Iron and arsenic, and arsenic alone had been given without effect. Transfusion of one and a third ounces of blood was done on March 9th, 1892. After improving rapidly for some time, acute phthisis made its appearance, from which he died. Dr. Brakenridge concludes his paper as follows:—The conclusions at which I have arrived from my experience of transfusion of human blood in pernicious anæmia may be very briefly summed up as follows:—(1) If all the necessary precautions are strictly adhered to the operation is perfectly safe; (2) quite healthy blood with living blood corpuscles can be added to the diseased blood of the patient; (3) this blood exerts a beneficial influence both on the blood with which it is mixed and on the blood-forming organs, for—(*a*) sooner or later the abnormal peculiarities in the forms and the exceptional varieties of the corpuscles disappear; (*b*) sooner or later the blood corpuscles begin to increase in excess of those added by the transfusions; (4) these facts are opposed to the view that an abnormal destructive activity of a disordered liver is the only or the main pathological condition in pernicious anæmia; for it is difficult, were this true,

to understand how the blood corpuscles added should not soon fall victims to the destructive influence of the liver cells. The foregoing results of transfusion rather favour, although they do not absolutely shut one up to, the conclusion that the true pathology is, probably, somewhat like this:—(1) The real condition of the blood in pernicious anæmia is a delicacy and tendency to early death of the red blood corpuscles; (2) the probable starting-point of this delicacy and feeble resistance in the blood corpuscles is some functional weakness in the blood-forming organs, which may be due to various possible causes; (3) the irregular-shaped, variously-sized, and otherwise abnormal blood corpuscles point to some such imperfect genesis; (4) consequently without any abnormally increased destructive force in the portal system and organs—it being a normal function of the liver cells to destroy the red corpuscles—a greatly-increased death-rate of these delicate and short-lived corpuscles takes place; (5) the introduction by transfusion of a considerable amount of healthy blood acts beneficially in a two-fold way:—(*a*) By immediately improving the health and resistance of the blood (including the delicate blood corpuscles) which becomes mixed with it; and (*b*) later on, by gradually operating beneficially on the blood-forming organs through which it circulates, restoring their blood-forming functions to the normal condition. (Edinburgh Journal, November, 1892, p. 428.)

TYPHOID FEVER.—Results of Cold Bath Treatment. We use the bath-treatment and advocate it because by it the mortality in typhoid fever has been reduced so remarkably in hospital work that its employment seems imperative for the saving of lives. Practically, the mortality under the cold-bath treatment in hospitals has been reduced from 15 and 20 or 25 per cent., to an average of 6 or 7 per cent., taking all cases, or even very much lower if the cases are seen early. Indeed, Brand has figures that show an absence of mortality in some 1,200 cases in which the treatment began before the fifth day. But in hospital practice we can never expect to see our patients before the end of the first week. At the German Hospital in Philadelphia, where the method has been followed most accurately by Dr. J. C. Wilson and his colleagues, there were ninety-four consecutive cases treated without a death; but I understand from Dr. Wilson that this remarkable good fortune has not continued, though the mortality has been kept at a very low rate. Our own more limited experience is also strikingly in favour of the method, and a report is in course of publication dealing with the first hundred cases so treated. In the first year of the opening of the hospital there were thirty-two cases treated on the symptomatic and expectant plan, of which eight

died, a mortality of 25 per cent., a rate unusually high even for a general hospital. The cases, however, were of unusual severity; one had acute hemorrhagic nephritis, with profuse hæmaturia; one case, admitted at the beginning of the third week, had extensive double pneumonia. Two cases died of perforation, while another case died of profuse hemorrhage from the bowels. On the other hand, in the first hundred cases treated by the cold baths, the mortality has been only 7 per cent., a reduction so striking and remarkable that it must be attributed to the good results of the bath. Even this rate of mortality, which is about the average for hospitals in which the rigid Brand system is carried out, would be considered by the proposer of the method far too high. (Dr. Osler, Medical News, December 3, 1892, p. 619.)

[See also lecture by Dr. William Osler on "The Method of Using the Cold Bath in Typhoid Fever," at p. 133 of this volume of the *Retrospect.*]

Typhoid Fever.—Turpentine in.

H. C. Wood believes that when, in the convalescence of typhoid fever, the existence of local intestinal symptoms points toward slowness of healing of the ulcers, turpentine is an invaluable remedy. It is also indicated when there is marked tympanites, with dryness of the tongue, developing in the end of the second week of typhoid fever. The action of turpentine is believed to be a local one upon the ulcerated surface. The terebinthinates are slowly absorbed, and, indeed, volatilised at the temperature of the stomach and intestines, and we may readily believe, from the results of laboratory researches, that there is a special relation between the oil of turpentine and the bacillus of typhoid fever (Omelchenko). This practice has been in vogue for more than half a century, and the author believes that it is a good one, and distinctly tends to lessen the severity of the local lesions in enteric fever. The formula recommended is oil of turpentine, 1; glycerine, 4; mucilage of acacia, 6; peppermint water to 32. The dose is one tablespoonful every four hours during the day.—*Therapeutic Gazette*, 1892, No. 6, p. 366. (The American Journal of the Medical Sciences, October, 1892, p. 459.)

Typhoid Fever without Pyrexia.

Dr. Dreschfeld reports four cases of apparently undoubted typhoid fever without pyrexia, of which he says:—"The persistent diarrhœa and hemorrhage, the enlargement of the spleen, the roseolar eruption, and the distinct relapses in two of the cases, and the fatal termination by perforation in the third, scarcely admit of any other diagnosis. That they ran their

course without any pyrexia may I think be equally maintained; for, though the temperature was not taken at the beginning of the attack, in two cases it was carefully observed during the relapse, and in all cases the temperature was taken at a stage of the disease when the pyrexia is usually most marked, and often at its highest. Nor can the hemorrhage be looked upon as the cause of the apyrexia, for it was only noticed in two of the four cases; it was not very profuse, and only lasted a few days. Though most of the larger treatises on fever mention the existence of apyrexial typhoid, yet detailed descriptions of cases appear to be very scanty. Gerhardt (*Charité Annalen*, 1891, p. 208) records seventeen cases, one of which with relapse he observed at Würzburg, and sixteen in Berlin. Of these, eight were females and eight males, between the ages of fourteen and forty-four. The onset of the disease in these cases was mostly very acute, commencing with headache, lassitude, vertigo, anorexia, vomiting, and diarrhœa. Insomina was a prominent symptom in some of the cases. The diazo-reaction was found present in half the cases, and the urine had all the character of febrile urine. Roseola was present in thirteen cases, and enlargement of the spleen was absent only in two. The loss of body-weight was but slight. The two first cases, along with the fatal case (*Case III*), described in this communication, ought to make us very guarded in the prognosis of apyrexial typhoid fever. The therapeutic measures in this variety of the disease consist chiefly of rest in bed, and careful and strict dieting. Drugs are only indicated when the diarrhœa or hemorrhage becomes profuse, and when complications arise." (The Practitioner, April, 1893, p. 278.)

TRIONAL AS A HYPNOTIC.

Dr. A. Boettiger has used this remedy, otherwise known as diethylsuphon methylethylmenthan, in about seventy-five cases in which insomnia has been a prominent symptom. The doses vary from fifteen to sixty grains, administered as a powder in warm water, milk, soup, or tea, in two or three doses, the last being at bedtime. In simple insomnia, sleep follows generally within an hour and lasts six to nine hours. It is apparently as effective in one-third the dose as chloralamide or amylene hydrate. In insomnia the sequence of bodily pain, the conclusion is that the pain itself is not influenced. Among insane patients, mildly affected, trional is a serviceable hypnotic; in more severe cases, in larger dosage—that is, from frequent repetitions—it is often valuable. Apparently patients do not become habituated from continued usage.—*Berliner klinische Wochenschrift*, 1892, No. 42, S. 1045. (The American Journal of the Medical Sciences, January, 1893, p. 87.)

TRIONAL AND TETRONAL.

Raimondi and Mariottini (*Rif. Med.*, August 17, 1892), from a series of observations on trional and tetronal, comparing them also with sulphonal, arrive at the following conclusions: (1) Both drugs act as powerful hypnotics in the same sense as sulphonal, exercising their action on the cerebral cortex. (2) They succeeded in many cases in which sulphonal had altogether failed. (3) The influence of the ethyl group on the hypnotic action in man was marked; it was unfortunate, however, that with an increased number of ethyl groups in the molecule the toxicity of the compound steadily increased. In fact, the toxicity of sulphonal, trional, and tetronal was about as 1 to 1½ to 3. (4) The drugs have but little harmful action on the vital functions, even on the respiration, but their action on these functions increases also in the above order. (5) They both have a slight cumulative action; in fact, if the hypnotic action of trional and tetronal is more prompt, it passes off less rapidly than that of sulphonal, and there is more danger of a cumulative effect from the very slow decomposition of the drugs in the organism after frequent successive doses. (6) With neither trional nor tetronal does there seem to be any tendency to the establishment of a condition of tolerance, nor does the dose require to be increased after a time. (7) After small doses neither drug appears to have any influence on sweat or temperature: the sleep seems to be quite natural and respiration normal. (8) The symptoms of slight poisoning by these drugs are similar to those seen in the case of sulphonal. The symptoms need not, however, give rise to alarm, as no permanent harm is done to the vital centres. In cases of severe or criminal poisoning, however, the stomach should be emptied, or if the drug is probably nearly all absorbed, its elimination should be hurried by the use of diuretics, while stimulants are given. (9) Observations on patients suffering from sleeplessness from various causes, and on lunatics, show that good effects can be got on single occasions with doses of ½, 1, or 2 grammes; for prolonged use, however, tetronal is not recommended, but trional should be alternated with sulphonal. Even with trional, however, a first large dose should be given to overcome the insomnia, and if necessary to repeat on the next day, only half or two-thirds should be given. This will keep the effect without causing any danger. (10) As to dose and time for administration: (*a*) the dose may vary from ½, 1, to 3 grammes, according to age, sex, habit, &c.; (*b*) it may be given suspended in warm milk, broth, &c.; (*c*) while with sulphonal the drug has to be given about an hour before its effect is desired, with these the administration may be deferred till it is desired to produce sleep. (Epitome of the British Medical Journal, December 17, 1892, p. 99.)

AFFECTIONS OF THE NERVOUS SYSTEM.

CHOREA.—Arsenic in.

Although so long and widely used, there are still a few conditions in which arsenic has yielded results which are as yet foreign to most text-books on therapeutics. First of all as to its value in chorea. So little stress has been laid on its efficacy in large doses in this disease that a short historical sketch of my experience of it may help to impress its value. The late Mr. Ralph Linton of Chester-le-Street enjoyed a wide reputation for the cure of St. Vitus's Dance. I have seen the desk in his surgery covered with letters from all parts of the North of England asking for a bottle of his infallible cure. He assured me that he rarely failed to cure this disease in a week, so that one 12-oz. mixture (half an ounce three times a day) was sufficient for the purpose. I could never extract from him even a hint of his method until I was called to see him professionally on his death-bed, when he told me his secret which was simply this—"that Fowler's solution in fifteen or twenty drop doses might generally be given to children for a few days without disturbing the stomach, and that so given it was an almost infallible cure for chorea within a week." The first case of chorea in which I tried this plan was an extremely bad one, and I was quite startled by the rapid and successful result I obtained. Not long after this first case of mine I was asked by my old friend Mr. Sang "to suggest a remedy for a bad case of chorea, which had resisted the usual remedies." He was somewhat staggered by my suggestion of fifteen-drop doses of Fowler's solution; but he tried it and succeeded in curing his case in a few days. I next tried the remedy in one of those cases of violent chorea bordering on mania, and was again rapidly successful. Shortly after this I saw a young girl with Dr. Gibb, of Newcastle, who had done all that could have been done by the usual methods. He agreed to try the remedy in five-drop doses at first, which I assured him would not do much good; at our next consultation he agreed to give fifteen drops thrice daily. The child was cured in four days and has never ailed since. I might extend these illustrations to many other equally successful cases, but I need not go further than to say that I have only seen one case in nearly twenty years which has resisted this treatment by large doses of arsenic. My old friend Linton was right when he insisted on a minimum dose of fifteen drops. Ten drops will not do—the dose must reach fifteen drops or more. I need not say the remedy should be taken with food in the middle of a meal, and if it does not act in a week must be dropped, as after that the toxic action of the remedy would come into play and the patient would be injured. (Dr. William Murray, Newcastle-on-Tyne, The Lancet, February 25, 1893, p. 406.)

DIABETES.—The Knee-jerk in.

The fact that the knee-jerks are frequently absent in cases of diabetes mellitus was pointed out by Bouchard in 1884. The absence of knee-jerks is now a well-known symptom in the disease, and there are many points of interest in connection with this peculiar reflex. From my notes of cases of diabetes seen at the Manchester Royal Infirmary and met with elsewhere, I have selected fifty, and the following are a few statistics respecting the knee-jerks in these cases. In fifty cases the condition of the knee-jerks was as follows:—Knee-jerks absent, in 25 cases = 50 per cent.; one knee-jerk absent, one obtained feebly (Jendrassik's method), in 3 cases = 6 per cent.; both knee-jerks just obtained, but very feeble (Jendrassik's method), in 3 cases = 6 per cent.; knee-jerks present, in 19 cases = 38 per cent.; total 50. A knee-jerk, which has disappeared in a patient suffering from diabetes, may return again and vary very much in the course of time. Knee-jerks which are present when the patient first comes under observation, may, of course, be lost at a later period in the disease. But this is certainly *not* always the case, as the knee-jerks may be obtained after the long duration of the disease, and even up to the death of the patient. I have found them present at the end of $2\frac{1}{4}$ years, and, in another case, they were present, but feeble, at the end of 5 years; also in three cases that terminated fatally in diabetic coma, the knee-jerks were present up to the very last. (Dr. Williamson, Medical Chronicle, November, 1892, p. 81.)

DIABETIC NEURITIS.

In the course of a discussion on peripheral neuritis at the British Medical Association (Nottingham, 1892), Mr. Davies Pryce described three cases of diabetic neuritis. He pointed out that, although neuritis in diabetes had for some time been recognised clinically, pathological proof of this condition was very slight. Indeed, with the exception of a case published by himself, and of the observation of Anche in 1891, and of Eichhorst in 1892, no pathological evidence of this neuritis had been forthcoming. He drew attention to those cases of diabetes with which there was associated a certain amount of ataxy, and which might be termed diabetic pseudo-tabes. Mr. Pryce's first case was one of diabetes, ataxy, and perforating ulcers of both feet in a man aged fifty-six. His history was one of the passage of large quantities of urine, and of alcoholism. He complained of great pains in the lower extremities, together with difficulty of walking. There was loss of the knee-jerks and diminution of sensation in both feet. Death was due to diabetic coma. Extensive parenchymatous neuritis was found in the nerves of the lower extremities. There was also marked vascular disease. No tabetic change was

found in the spinal cord. Mr. Pryce also related to other cases in men past the middle period of life of a similar nature, in which there was found, after death, extensive peripheral neuritis. In both these cases death was the result of gangrene of the lower extremities. The following appeared to be the chief points of note in these cases: (1) The absence of any definite paralysis; (2) the marked ataxy; (3) the prominence of trophic and vaso-motor symptoms; (4) the essentially chronic course of the disease. With regard to the etiology, Mr. Pryce suggested that vascular disease and general malnutrition were probable causative factors. No definite relationship was observed between the severity of the symptoms and the amount of sugar in the urine. (British Medical Journal, November 19, 1892, p. 1100.)

EPILEPSY.—Method of determining Brain Areas in Trephining for.

Working upon the rules laid down by Reed, Thane, and others, we have been accustomed to map out upon the skull with the greatest care, in advance of the operation, the exact site of the various divisions of the motor areas. Excellent as this practice is, I am now firmly of the opinion that in most cases it is quite unnecessary, and that the application of the faradic current to the dura will help us to localise centres much more carefully than any of the customary rules will. At the last meeting of this Association doubt was expressed whether faradization of the dura was apt to be successful. My experiences during the past year have helped to strengthen the opinion expressed at that time, and I feel so certain of the absolute reliability of this procedure, that I would be willing to have the skull opened at any reasonable point over the motor areas and by means of the faradic tests determine the exact location of the centres. I have demonstrated this again and again to the satisfaction of Dr. Gerster and a large number of medical men present at these operations. The method is furthermore so accurate that I believe we shall be able to determine the exact subdivisions of the moter area in the brain of man as they were determined by the physiologists upon the brains of the monkey and other animals. The success of this method was particularly marked in Case II., a case of Jacksonian epilepsy with convulsive movements of the muscles about the right angle of the mouth. In Horsley's article I found an area which he claims to contain the representation of the upper face and angle of the mouth. I located this area as closely as possible upon the skull, and after trephining, on applying the faradic current to the dura, caused contraction of those muscles and of those muscles only which were, as a rule, involved in the epileptic convulsion. I need not add that the same tests applied to the cortex will

give equally satisfactory results ; but the chief advantage of determining these areas before opening the dura is that we may be sure that we are right before exposing any large part of the brain cortex. While I am very certain that this method will be found entirely satisfactory in all cases of ordinary brain lesions, I have a suspicion that in cases of tumour, or in cases in which the brain tissue has been seriously altered by disease, the morbid brain tissue may not respond as promptly to the current. In such cases the older method of determining the areas will have to be resorted to. (Remarks by Dr. Sachs.) (The American Journal of the Medical Sciences, November, 1892, p. 505.)

[See also Article by Drs. A. G. Gerster and B. Sachs "On the Surgical Treatment of Epilepsy," at p. 277 of this volume of the *Retrospect.*]

ERYTHROMELALGIA.

Senator (*Berl. klin. Woch.*, November 7th, 1892) showed a case of this disease before one of the Berlin medical societies at the same meeting as Gerhardt showed his case. A man, aged forty-four, previously healthy, was seized one and a half year before with neuralgic pains and weakness in the arms and then in the legs. Later a more or less symmetrical redness appeared. When seen there was a deep-coloured redness, disappearing on pressure, over the metacarpo phalangeal and first phalangeal joints of both hands and also over the region of the elbows. Some redness was also present over the malleoli, the dorsa of the feet, and in the region of the left knee. The redness varied in intensity, being worse in the summer, and no pain existed now. Some small nodules were seen in the reddened patches on the backs of the hands. The bones and joints were healthy, and there was no visceral disease. Drawing the nail over the skin of the arm or chest produced a streak similar to that seen in urticaria. Among other remarks, the author says that this disease differs from erythema caloricum by affecting the feet and sparing the hands, by its onset with pain preceding the redness and by its persisting for years. It is possible that some of the recorded cases of habitual erythema may have belonged to erythromelalgia. The disease is an angio-neurosis. As regards the nodules, vasomotor disturbances are known to be accompanied by anomalies of hypertrophy and atrophy, but these nodules have not apparently been hitherto described in erythromelalgia. The patient felt better after electrical treatment, but no objective improvement was noted. Antifebrin considerably relieved the pains when present.—Bernhardt (*ibid.*) also showed a case in a woman, aged fifty. Five years before she had pain in the hands and feet followed by redness and

swelling. Both palmar and dorsal surfaces of the hands were affected. The redness was not uniform, and the skin over the wrist-joint was not involved. There was swelling and tenderness over the reddened parts and pain on active movements. The joints were unaffected. The nerves and muscles of the arms were also tender on pressure. Contrary to other cases, she was worse in the cold weather. The fingers felt as if stuffed, but sensation was unaffected. The condition of the feet had much improved, so that the patient could walk well. (Epitome of the British Medical Journal, December 17, 1892, p. 97.)

Erythromelalgia.

Gerhardt (*Deutsche medicin Wochenchr.*, 1892, No. 39, p. 866) has reported the case of a tailoress, forty-four years old, who had been ill a good deal and had had considerable headache, with loss of hair. Menstruation appeared late, and was irregular. There were frequent attacks of gastro-intestinal catarrh, often with severe gastralgia. Vomiting was frequent, and on two occasions there had been hæmatemesis. The bowels were habitually constipated. There was palpitation of the heart. Micturition was increased in frequency and volume. For ten years there had been vertigo, intensified in paroxysms. The patient was one night suddenly awakened from sleep by intense pains in the fingers and toes, with vomiting and headache. The pain persisted with varying intensity. The hands were red and swollen and perspired readily. There was also an undue tendency to perspiration about the head. The feet were also red and swollen. The terminal and middle phalanges of the hands and feet were moderately enlarged. These parts felt hot, were often covered with sweat, and at times presented a tense, glossy appearance. The swollen parts were unduly susceptible to painful impressions. The fingers were usually held in semiflexion; attempts to extend them occasioned pain. Gerhardt summarises the symptoms presented by the fourteen other cases of the disease that have been reported in the literature. The name erythromelalgia was given by Mitchell. The affection seems principally to affect persons that are much exposed to cold. Other antecedent conditions have been over-exertion, debility, a neurotic disposition, rheumatism, and syphilis. The disease has been observed more commonly in males than in females, and between twenty-eight and forty years than at any other period. Pain is the most prominent symptom, and usually the first; swelling appears subsequently. The pain is usually described as hot or burning, and as worse in warm weather. It is increased by movement and is mitigated by cold. In most cases the lower extremities are involved, sometimes only one; sometimes only the upper, at other times all four. The veins of the affected

parts are usually enlarged, together with which there are often redness and swelling. In most cases there occur paroxysmal exacerbations, while during the intermissions there is entire freedom from symptoms. The disease is rather rebellious to treatment. (The American Journal of the Medical Sciences, December, 1892, p. 721.)

HICCOUGH.—Jaborandi in.

Nobel and Stiller (*Centralbl. f. klin. Med.*, 1892, Nos. 32 and 42 respectively refer to the good effects produced by jaborandi in hiccough. Nobel's patient was a man suffering from influenza, and the infusion of jaborandi was used. Nobel draws attention to the fact that, notwithstanding the presence of some cyanosis, the drug had no ill effect upon the heart. He refers to other recorded cases, and adds that it remains to be proved which constituent in jaborandi brings about the good results. Stiller says that he has long used pilocarpine (ten drops of a one per cent. solution three or four times a day) in hiccough of nervous origin, and that it is the best remedy known for this condition. He does not employ it in the reflex hiccough of severe abdominal disease and peritonitis. At times, and especially in hysteria, only improvement or temporary cessation in the hiccough has been obtained, necessitating the further use of the drug. Stiller says that the good effects of jaborandi are due to pilocarpine. (Epitome of the British Medical Journal, November 5, 1892, p. 76.)

NODDING SPASM IN INFANTS.

After reference to five cases of this disorder, Dr. Frederick Peterson, of New York, says: Of the ten cases described by Hadden and myself, seven were under ten months of age and the other three under fifteen months. The disorder would, therefore, seem to be one of early infancy, though Henoch reports a case in a child three years old. In all of my cases the motion was distinctly and solely from right to left and left to right; in other words, a rotary spasm, or gyrospasm, as I think proper to call it. The title of Hadden's paper, however, refers to other forms of head-movement, "On Head-nodding and Head-jerking in Children, Commonly Associated with Nystagmus." Sometimes there was nodding simply, sometimes both nodding and lateral movements, and again only rotary spasm. Henoch says: "In many cases I have found the rotating movement by far the most marked, and the nodding very slight." I have noted cessation of the spasm during sleep, and, as recorded, whenever the attention of the child was drawn to any particular object, so as to interest it. In only one of my five cases did I observe nystagmus, and that was lateral and monocular. In

another case the mother claimed to have seen it, but I could not corroborate this. In three of Hadden's cases, three of Henoch's, and one of Norrie's, there was monocular nystagmus, but, according to the first-named author, double nystagmus is more frequent. From my own experience I should not be inclined to look upon nystagmus as a condition usually associated with the gyrospasm and spasmus nutans of infancy, but as an occasional concomitant. When present, it may be monocular or binocular, and lateral, vertical, or rotary. It seems to occur at times in infants by itself, as a sole symptom, doubtless of a pathologic condition similar to that which underlies the gyrospasm. In one of my cases there was convergent strabismus, and Henoch, Hadden, and Gee each report a similar instance. Henoch looks upon dentition as a cause, and the age of early dentition at which the disorder usually appears would seem to favour his view. At the same time, my own cases would hardly support his idea, for in one it began at three months, in one at four, and in one at five, and in the two others at seven and eight months, respectively. Head-injury preceded the appearance of the spasm in three of Hadden's cases, and in two of my own a fall out of bed seemed to have occasioned the malady. Perhaps concussion of some kind may be found in most of the cases to be the determining factor—a concussion setting up in the centres of the spinal accessory and at times in those of the oculo-motor nerves an arhythmic discharge. We know that in adults concussion of the brain, if severe, may quite suddenly give rise to a rapid, though temporary nystagmus. The organic basis of the disease usually being of a slight nature, the prognosis may, as a rule, be considered very favourable. Treatment with potassium bromide, in doses of from one and one-half to three grains three times daily, will certainly ameliorate and generally cure these cases. Even without treatment, gyrospasm and the nodding form of movement are likely to disappear in a few months or years. (Medical News, October 1, 1893, p. 375.)

POTT'S PARAPLEGIA.—Laminectomy for.

Dr. Samuel Lloyd appends the following conclusions to a paper on this subject, an excerpt from which will be found at p. 273:—The operation is naturally contra-indicated. (1) In cases where there are other complicated tubercular lesions. (2) In cases where mechanical treatment has not been applied. It is indicated: (1) In cases where posterior spinal disease is made out as the cause of the paraplegia. (2) In cases where the lesion seems to indicate the failure of mechanical treatment, *i.e.*, where dislocation has occurred or where a sequestrum is causing the compression. (3) In cases where during the employment of intelligently applied apparatus the symptoms continue to

increase in severity. (4) In cases where after a certain period of careful mechanical treatment, say eighteen months, the condition has remained stationary. (5) In cases where pressure myelitis threatens the integrity of the cord. In all cases where sinuses lead down to, or can be safely straightened so as to allow the probe to explore the abscess cavity with which they communicate, they should be enlarged so as to provide thorough drainage, and if sequestra are present they should be removed. I should incise and treat all abscesses connecting with the spine, approaching near enough to the skin to allow of their being opened without a dangerous dissection; they should be then explored, washed out, and drained. Although the statistics of the cervical cases are slightly less favourable than those of the other regions, the dangers to life even without operative interference are also greater. One of the cervical cases died from inhibition of the phrenic nerves. In this case the disease was localised at the third and fourth cervical vertebræ and in order to determine the presence or absence of an abscess or tumour in the cord, exploratory puncture was resorted to. The result emphasizes the dangers of interference with the cord where the lesion is at the level. At the same time in disease in the cervical region there is constant danger that the pachymeningitis will extend upwards and by making pressure about this area of the origin of the phrenic nerves cause respiratory difficulties. In my opinion, therefore, whenever there are any indications that the inflammatory conditions are extending towards this portion of the cord, operation should be undertaken at once. The opening of the spine may be sufficient to avert the dangers due to phrenic disturbance and of course there is the strong possibility of the total arrest of the process. The urgency of the condition would render the operative treatment advisable even though the results were more unfavourable than they are. (Annals of Surgery, October, 1892, p. 305.)

PUERPERAL NEURITIS.

Möbius (*Münch med. Woch.*, November 8th, 1892) records two further cases of this disease. (1) A woman, aged 29, had given birth to six children. The first two were alive, the third died after eight days, the fourth and fifth were born dead at the seventh month. The sixth child was found to be dead and had to be mutilated before it could be delivered. Fever followed, apparently due to pelvic cellulitis. Three weeks later there was pain in the left calf, which passed off. In the ninth week the patient had curious sensations in the right forearm, and she could not write or use scissors. When seen by the author she had paralysis of the right flexor longus pollicis. This muscle showed the reaction of degeneration. No real improvement had

as yet taken place under electrical treatment. (2) A woman, aged 55, was found to have well-marked atrophy in the muscles supplied by the left ulnar nerve. Motion was not much interfered with, and the electric reactions were preserved. There was some hyperæsthesia in the same region. She gave a history of having thirteen years previously had fever after childbirth and severe pains in the abdomen. Fourteen days later she had hyperæsthesia in the left ulnar region, and later pains in the arm. The left hand gradually became weak. In three or four weeks the pains ceased, but some weakness persisted. (Epitome of the British Medical Journal, January 21, 1893, p. 10.)

SPINAL CORD.—Surgery of.

Chipault (*Rev. de Chir.*, 1892, No. 8) describes the following methods of attacking the spinal cord: A linear longitudinal incision of considerable length over the posterior spines of the vertebræ is the best. This is carried into the deeper structures, the periosteum being raised and preserved as far as possible, in order to secure the bony covering of the wound after operation. Hemorrhage is stopped by compresses before the canal is opened. This he considers most effectually and safely done by the trephine, followed by cutting forceps one of whose blades is smooth and flat and can be introduced between the dura mater and the bone without danger, making a smooth opening that will not injure the membranes. The amount to be removed depends entirely on whether the object sought has been found or not. The surgeon's duty does not end with the exploration of the extra-dural space, and the removal of tumours, clots, or spiculæ of bone that may be there present. The dura mater must be incised and its cavity explored, except where a peri-pachymeningitis might lead to further infection, or after extra-dural tumours have been found and removed; in a case of fracture it is always a necessity, or where there is an absence of pulsations synchronous with the pulse and respiration. The pre-dural adipose tissue should first be removed, then the incision is best made between two forceps that raise the dura mater and afterward serve as retractors. As the cerebro-spinal fluid pours out, the pulsations cease, and the outpouring ceases also after a few minutes. Then examinations can be made, tumours removed, and the partially or entirely severed cord sutured. The dura mater should then be sutured without drainage, to prevent the further escape of fluid, only the superficial wound being drained. To attack the anterior and lateral surfaces of the cord, the patient should be placed on two cushions, lying on the opposite side to the one to be investigated, and in such a manner that the spine makes a downward curvature between the cushions; by this curvature

it is possible to rotate the cord on its longitudinal axis, and view either half as the case requires. It is also possible to introduce instruments between the lateral branching nerves and remove fungous growths on the bone or any in the canal, as also tumours. He also details operations of puncture for hydrocephalus, suture for fracture and dislocation, and warns operators against the effect of shock from anæsthetics, which he believes greater in these operations than in others. (The American Journal of the Medical Sciences, January 1893, p. 98.)

SYPHILIS AND NERVOUS DISEASE IN CHILDREN.

At the Medical Society on November 21, 1892, Dr. W. B. Hadden read a paper on the Bearings of Syphilis in respect of the Production of Nervous Diseases in Children. After alluding to the observations of Dr. Barlow and Dr. Judson Bury, "that nearly every variety of nervous affection of acquired syphilis has its parallel among congenital examples," as in part true, he passed on to consider the question whether syphilis was an important agent in the etiology of such infantile disorders as hemiplegia, posterior basal meningitis and sclerosis of the convolutions. In the absence of post-mortem proof, clinical evidence, however strong, must be received with reserve. He referred to Osler's work on the cerebral palsies of young children, and remarked that only one case out of 120 was ascribed to congenital syphilis, whereas Abercrombie mentioned four, if not six, out of a series of fifty. Sachs and Petersen found two such cases out of a series of eighty-three. He reviewed other statistics of the same kind, and pointed out that the balance of opinion was in favour of syphilis being an important and a frequent cause. There were not many observations bearing on the condition of the vessels in congenital syphilis, but he thought arterial disease was probably less uncommon than was generally supposed. He pointed out that the majority of cases of hemiplegia in young children arose without any apparent cause; that syphilis was known to predispose to arterial changes in adults and occasionally also in children, and he insisted that a syphilitic history should be most carefully sought for. His own experience in this respect was based on the notes of forty cases, mostly at the Hospital for Sick Children, Great Ormond Street. Though he had no pathological experience to offer, his cases possessed a special value on account of their having been observed in very early life. He divided his cases into (1) those with an acute onset and (2) those without a definite onset. Many of the latter were probably congenital and dependent on mechanical conditions during pregnancy or delivery favouring inter-cranial hemorrhage; others were probably associated with

sclerosis of the convolutions. Many of the acute cases followed so closely on certain specific diseases—measles, diphtheria, &c.—that a causal connection might be reasonably assumed. In most, however, there was no apparent cause, the hemiplegia supervening on convulsions in children in apparent health. The commonest cause being thrombosis or hemorrhage, the question resolved itself into the inquiry as to the causation of arterial degeneration. Up to three years of age embolism was rare, but after that it became comparatively frequent. In the cases of hemiplegia under consideration embolism might be practically excluded. With reference to syphilis he said that in twenty-five cases of hemiplegia having an acute onset no inquiry was made in three, there was no evidence in nine, in five there was a bare suspicion, in six there was a stronger history, and in two the presence of syphilis was undoubted. In discussing his cases he commented on the fact that in more than one the symptoms had supervened in children presumably syphilitic during a course of mercury, a fact which might be adduced as an argument against the specific origin of the lesions. He concluded by suggesting the following points for discussion:—(1) Was there fair clinical evidence that infantile hemiplegia was often syphilitic? (2) Was arterial degeneration common in children, and what share had syphilis in its causation? (3) What share had syphilis in the causation of non-congenital idiocy? (4) Did syphilis act as a factor in the production of sclerosis of the convolutions in chronic meningitis? (5) Was mercury a constant and infallible therapeutic test in infantile syphilis? (The Lancet, November 26, 1892, p. 1221.)

SYPHILITIC DISEASE OF THE CEREBRAL ARTERIES.—Its Effects, &c.

It is, I believe, generally held that when one of the cerebral arteries becomes obstructed the district supplied by it undergoes softening and may become the seat of hemorrhage and that the district thus affected, unless it be a very small one, never becomes reinstated. It is obvious, however, that this is a rule which is liable to exception; for in the remarkable case which I have narrated, in which the intra-cranial portions of both internal carotids and their branches and the basilar were all obstructed by old clots, which, both from the history and post-mortem evidence, must have formed at different periods, there was no trace of softening or of any other pathological change in the nervous centres. I may add that cases are occasionally met with in which patients do recover perfectly from the effects of embolic obstruction of one of the cerebral arteries. It is an interesting fact also that whilst softening of brain-substance or hemorrhage was usually observed in distinct association with the obstruction of

an arterial trunk or branch, similar lesions were by no means unfrequently present in regions the arterial service of which appeared to be sound. In my fifth case there were old obstruction of the left internal carotid and a cyst in the left corpus striatum, but there was also softening of the right corpus striatum, the arteries leading to which were healthy. In my sixth case the right middle cerebral was obstructed and there was softening of the middle lobe of the corresponding cerebral hemisphere, but at the same time a cyst in the left corpus striatum. In my eighth case the posterior cerebral was thickened and reduced in calibre, and there was softening of the corresponding temporo-sphenoidal lobe, but there was softening also in the pons; and, lastly, in the second case, there was, no doubt, the association of widespread softening of cerebral and cerebellar tissue associated with widespread disease of arteries, yet none of these vessels was found to be actually obstructed, and softening was present in regions the arteries of which appeared to be wholly unaffected. The explanation I am disposed to offer of the phenomenon is the obvious one that the nutritive lesions were determined less by disease of the larger vessels than by disease of the smaller vessels leading to and ramifying in the affected districts, and that it is these latter which are often alone affected in particular districts. I base this view partly on the fact that such disease of the smaller vessels has been observed, partly on the difficulty there is in otherwise explaining the phenomenon, and partly on the consideration that it serves to link together cases which both on clinical and on anatomical grounds seem at first sight to have little connection with one another. (Dr. Bristowe's Lettsomian Lectures, The Lancet, January 28, 1893, p. 182.)

Syphilitic Diseases of the Membranes, the Vessels, and the Substance of the Brain.—Their differential diagnosis.

Judging from the analogies afforded by embolic obstruction of cerebral arteries, it might not unreasonably be supposed that obstruction of vessels due to syphilis would be indicated by paralytic symptoms of sudden onset; while, on the other hand, we know that the growth of tumours is, as a rule, revealed by the gradual development of headache, giddiness, and sickness, the specific signs usually being evolved at some later period; and hence it might seem not unlikely that we have a ready means of differential diagnosis. But, on the other hand, so far I know without exception, in all the cases of syphilitic obstruction of arteries that have come under my immediate observation the onset of symptoms has been gradual, there has been before the occurrence of paralysis a prodromal period of headache and sickness, or other morbid signs, due doubtless to the inflammatory

changes going on in the blood-vessels themselves or in their immediate neighbourhood; and further, in no inconsiderable number of cases a brain tumour goes on growing without causing any appreciable symptoms until suddenly the patient has an epileptic fit or some other attack which forms the clinical starting point of his malady. Again, it must not be forgotten that gummata, pachymeningitis and disease of arteries are often of simultaneous development. Nevertheless, it may be admitted that if in the course of vague cerebral symptoms a syphilitic patient suddenly has some kind of seizure and becomes hemiplegic the probability is that he has obstruction of vessels with the softening or hemorrhage which such obstruction is liable to induce; and, on the other hand, it may equally be admitted that if such a patient suffers from severe protracted cerebral symptoms, such as headache, giddiness, vomiting, optic neuritis, mental perversion or failure, and occasional or periodical epileptic attacks, the probability is that he is the subject of gummata or syphilitic pachymeningitis—a diagnosis the probability of which would be increased if at the same time there was evidence of syphilitic disease of the periosteum of the skull or of the ears. Again, gummata and pachymeningitis are specially apt to affect the parts at the base of the brain, and to implicate nerves; and hence the association of even vague cerebral symptoms with progressive and disorderly implication of the cerebral nerves points to one or other or both of these affections; and, in fact, there is no doubt that we are most likely to meet with hemiplegia in connection with obstruction of vessels and implication of nerves in connection with a gummatous tumour or infiltration. It must not be forgotten, however, that syphilitic obstruction of vessels is not limited to the middle cerebrals, as embolic obstruction for the most part is, but that any of the arteries may suffer, and that as a consequence we may get softening of the pons or crura cerebri, and together with more or less hemiplegia implication of many nerves, a condition closely resembling the consequences of basal gummata. On the whole I should be disposed to say that, having regard to the mode of invasion, to the character and frequency of epileptiform attacks, to the fact of the sudden or gradual development of hemiplegia, to the grouping and evolution of paralyses of cerebral nerves, we may in many cases form a reasonably accurate differential diagnosis, but that in the majority of cases no such accuracy is attainable, and, I may add, is unimportant. (Ibid., February 11, 1893, p. 287.)

SYRINGOMYELIA.

Dr. Taylor reports an interesting example of this disease with autopsy, and says: I may state that from a consideration of this

case and others which I have seen or descriptions of which I have read I believe the condition now so generally known amongst neurologists as syringomyelia to depend upon different conditions. Clinically, syringomyelia is broadly characterised by muscular wasting—often bilateral—and sensory symptoms, especially changes in sensibility to temperature and pain, while ordinary tactile sensibility may remain unchanged. These symptoms depend upon altered conditions in certain structures, and these structures may be injured in association, I believe, in different kinds of cases, to all of which the term "syringomyelia" is now applied. The two chief classes are, I think (and in this I only slightly alter Hoffmann's classification)—(1) those in which there is a congenital anomaly which may afterwards take on a process of overgrowth as distinguished from development; these are characterised clinically by the very gradual onset of symptoms, lasting, it may be, through many years; and (2) those in which there is actual central new growth, frequently with cavity formation, and it may be, associated with new growth elsewhere—glioma, sarcoma, or syphiloma,—and in which the course pursued is a much more rapidly fatal one. That there are cases partaking of the characters of each, I have little doubt, but the clinical division into cases which are slow and cases which are rapid in progress will, I think, be generally acknowledged,and I believe it is correlated with the anatomical distinction which I have just stated. (The Lancet, January 28, 1893, p. 190.)

AFFECTIONS OF THE CIRCULATORY SYSTEM.

ANGINA PECTORIS.—Useless or dangerous medication in.

Dr. Henri Huchard recalls the fact that for more than ten years he has employed the iodides in from fifteen to forty-five grains for a daily dose, and continued for several years, the attacks being relieved by nitrite of amyl or nitro-glycerine. Among the useless or dangerous medications he would cite : (1) Cardiac tonics. The anginas are almost always of arterio-sclerotic origin, where the pulse tension is already high, therefore digitalis and ergot are contra-indicated, while sparteine and convallaria are useless. Caffeine and strophanthus may, in some cases, produce favourable results. (2) Belladonna and bicarbonate of soda he regards as not only useless but harmful ; they are useless because the bicarbonate of soda has no influence upon the atheromato-sclerotic processes, and they can be harmful because the belladonna excites the cerebral centre of the pneumogastric and the intra-cardiac regulatory apparatus

and produces a contraction of the arteries ; in toxic doses only, does atropine give rise to the opposite phenomena. (3) Electricity, untrustworthy or dangerous, is almost always contra-indicated, and should only be used in those cases when there is threatening syncope, then cutaneous electrisation (faradisation) of the præcordial region. It is not to be recommended, because it can instantaneously stop the heart contraction, and it avails naught against the pain which it may even provoke. The constant current, far from being subject to the same dangers, has produced some good results, but the cases are insufficient to deduce therefrom the indications of a special medication. The faradic currents may be harmful, the constant are usually useless. (4) Cocaine, inhalations of oxygen. The former is dangerous, in that it produces vasoconstriction and cerebral ischæmia, thus predisposing to syncope ; the inhalations of oxygen are useless, and it is readily seen that they cannot act quickly enough to suppress an attack. (5) Antipyrine, as well as similar drugs, as phenacetine and exalgine, have no favourable action upon the circulation, and if it be true that they determine a dilatation of the cutaneous vessels and a contraction of the central arteries, they will be absolutely contra-indicated in the treatment of angina pectoris. (6) Bromide of potassium : its efficacy has been exaggerated in angina due to the condition of the coronary arteries, when a daily dosage of sixty grains has not been exceeded. Larger doses may rapidly produce a slowing, with weakening of the cardiac action, contraction of the smaller vessels, elevation of the blood-pressure, and, in his experience, are without the good results claimed by others, especial objection being made to the association of the three bromides. (7) Chloral, paraldehyde, sulphonal, urethane. As a hypnotic and anæsthetic, chloral can be used. It determines not only a slowing but a real enfeeblement of the cardiac contractions ; in large doses it is a cardiac poison, and can stop the heart in diastole, which forbids its use in degeneration or debility of the heart. It should not be ordered in massive doses, fifteen to thirty grains being ordinarily sufficient. Paraldehyde has been used without certain result, the causes being inconstancy of its action, unfavourable properties as regards respiration and the composition of the blood. Sulphonal acts very slowly ; even if it is harmless, the attack will be ended before the remedy takes effect. Urethane presents the same objection, with the additional one of uncertainty of its action. (8) Salts of potash. One recognises their unfavourable action upon the cardiac muscle, and, besides, if the kidneys act unfavourably (and renal insufficiency is frequently met with in those suffering from arterial sclerosis), they incompletely eliminate all poisons coming from without or formed in the organism. (9) Blood-

letting is slow in its results, and may prevent, to a certain extent, the attack, but is incapable of curing it. General blood-letting favours syncope, and for this reason should be absolutely condemned. (10) Chloroform inhalations are to be considered when nitrite of amyl or morphine injections have completely failed. Then the inhalations should be short, interrupted by free inspiration of air, with finger on the pulse and watching the face of the patient. (11) Various means, as inhalations of ether, ingestion of ice, immersion of left arm in hot water, are all uncertain, are not applicable, and do not succeed, save in the pseudo-anginas. For his own treatment, stated at the commencement of this paper, it can be said that it combats the pain, it is directed against the arterial sclerosis the development of which prepares for the degeneration of the cardiac muscle, against the lesion of the coronary arteries, and especially against the cardiac ischæmia which constitutes the principal and only danger of this formidable combination.—*Revue générale de Clinique et de Thérapeutique*, 1892, No. 39, p. 609. (The American Journal of the Medical Sciences, February, 1893, p. 183.)

AORTIC ANEURISM AND HÆMOPTYSIS.

Hempeln (*Berl. klin. Woch.*, October 3, 1892) first refers to the difficulty of diagnosis of aneurism, and says that, according to present views, hæmoptysis due to the (internal) perforation of the sac is a rapidly fatal event. He maintains that premonitory hemorrhages from such a perforation are not infrequent. Hæmoptysis in the course of aneurism may be (1) independent of the aneurism, (2) indirectly dependent on it, or (3) due to perforation into the air passages. Pulmonary infarction comes under the second heading, and the author says that tubercle not very infrequently develops in the lung as a consequence of aneurism. He does not think that any pressure likely to be exerted on the pulmonary veins would produce such engorgement as to give rise to hemorrhage. In this group hæmoptysis due to arteriosclerosis and interstitial nephritis must also be reckoned, as the aneurism and the vascular disease often own a common cause. Among eighteen cases of aneurism perforation into the air passages occurred seven times. In one of these seven cases there was no hæmoptysis, and in two there were infarcts. In the remaining four cases there was premonitory hemorrhage in three. The details of these cases with the morbid anatomy is then given. The hæmoptysis began in the first case five weeks, in the second eight days, and in the third four months before death. In the first two cases there could be no doubt that the hæmoptysis was due to the perforation. Clinically a slight hæmoptysis, lasting for months, as in the third case, could only be due to infarcts or

new growth. There was no evidence, either during life or after death, of such lesions. The author says that continued hæmoptysis in aneurism will appear to be not very infrequently caused by perforation, and less often by infarcts, as in two of his cases. Thus hemorrhage from these aneurisms may be (1) profuse and quickly ending in death, or (2) continued, premonitory, and lasting days, weeks, months, or even possibly years before death. The diagnosis in the second form of hæmoptysis may be very difficult. (Epitome of the British Medical Journal, November 26, 1892, p. 85.)

AORTIC REGURGITATION.—Digitalis in.

In the discussion on the use of cardiac tonics, at the meeting of the British Medical Association, 1892, Dr. Oliver (Newcastle) said that it was not because a patient had either mitral or aortic regurgitation that he applied for medical advice; it was because compensation had broken down. The left ventricle became dilated, and there was a call for administration of cardiac tonics. Dr. Oliver then alluded to the good effects of adonidine in cases of traumatic aortic regurgitation. He quite agreed with Dr. Brunton as to the inefficacy of digitalis in the dilated heart of alcoholic subjects. These were cases for strychnine or nux vomica. As to the advisability of giving digitalis in aortic regurgitation, Dr. Oliver said that in and around Newcastle there was a large artisan class population, many of whom worked hard and drank hard, and observation had led him to believe in the good effects of digitalis in aortic regurgitation. He had not met with a case of aortic regurgitation, carefully chosen and treated by digitalis, presenting unfavourable and alarming symptoms. The danger of aortic regurgitation lay in its accompanying low arterial tension, and that, with the rapidity of the heart's action and ineffectiveness of systole, digitalis greatly slowed the heart's action, raised the arterial pressure, and flushed the coronary arteries, thereby improving the nutrition of the heart and removing the waste products from the myocardium. Many of the alarming symptoms attributed to digitalis were due to the consequences of the disease itself and the effect of the accumulated waste products upon the myocardium. That, with the dilated condition of the right ventricle, explained sudden death in heart disease. Dr. Oliver believed in the good results of the employment of small doses of pil. hydrarg. coloc. frequently repeated, every day or every second day. Digitalis did not act well in the later stages of heart disease. What was required was to eliminate by bowels and kidneys the waste products that were accumulating in the blood and paralysing the walls of the heart or poisoning nerve ganglia.

Dr. Lindsay (Belfast) had tried digitalis and strophanthus largely, convallaria and caffeine much less frequently, casca and spartein not at all. He regarded digitalis as much the most valuable of the group, and strophanthus sometimes a useful alternative to it. He had seen benefit from caffeine. The chief successes of digitalis were in mitral regurgitation: it was almost useless in mitral obstruction; aortic cases constituted the debatable area. Pure aortic obstruction sufficient to cause symptoms was, he thought, a rare condition; on the other hand, aortic regurgitation had been very frequent in his hospital experience. Belladonna was often of service in such cases. Digitalis sometimes was of great service, and sometimes as signally failed. He had found great difficulty in distinguishing the cases of aortic regurgitation in which benefit might be expected from digitalis. He had generally found it to fail if the chief symptoms complained of were præcordial oppression, giddiness, and slight dyspnœa; where pulmonary congestion and dropsy were present benefit might be expected. (British Medical Journal, November 26, 1892, p. 1156.)

BRADYCARDIA (By Hampeln).

This may be either physiological or pathological. The former variety is observed in convalescence and after confinement; the latter may be connected with poisoning, with functional or organic disease of the heart, or with disease of other organs. Bradycardia may be transient or permanent, the latter form especially being of interest to the clinician. Temporary slowing of the pulse may be met with during the febrile period of typhoid; in tubercular meningitis; in diseases of the brain and spinal cord; in disorders of the alimentary tract; in poisoning by digitalis, alcohol, and tobacco; in icterus and uræmia; and as a result of mechanical irritation of peripheral nerves. That which may be considered a pure functional neurosis of the heart seems to occupy a position intermediate to the two groups. It may be present by itself or in association with other neuroses, and it seldom becomes very pronounced. It is different from the bradycardia which occurs in connection with organic affections of the heart, especially aortic contraction, sclerosis of the coronary arteries, and sclerosis and fatty degeneration of the myocardium. In aortic stenosis, the bradycardia is compensatory, for the heart, by beating more slowly, contends to greater advantage against the obstruction. Hampeln gives the same explanation of the slow action in lesions of the myocardium. Bradycardia must be taken in all cases as indicative of a more or less dilated heart. The same quantity of blood which, in the normal state, is expelled by sixty or seventy contractions per minute, must now be expelled by twenty, thirty, or forty

contractions, so that the ventricles must receive two or three times the normal amount of blood, and such a quantity they could not contain unless they were dilated. Hampeln recommends that the treatment should be directed, not so much against the bradycardia as against the cardiac asthenia. Stimulants, *e.g.*, atropine, may restore the normal rate of the heart. In a case of aortic insufficiency, with failure of compensation and a pulse of forty per minute, the symptoms disappeared under the use of digitalis, which actually accelerated the pulse to sixty. In cases of this kind, degeneration of the myocardium was the real cause of permanent slowing, and the author remarks that the condition of this tissue should be our guide in treatment.—*La France Médicale*, 6th January, 1893. (The Glasgow Medical Journal, April, 1893, p. 313.)

IRREGULAR HEART.

At the Medical Society on December 12th, 1892, Dr. Sansom read a paper on the Irregular Heart. He stated that it was a review of forty-seven cases presenting pronounced irregularity of the heart for long periods, which had all been under his own observation, all of them being independent of structural disease as a protopathic lesion. They were considered in two groups. the smaller group of ten cases being all examples of Graves's disease. The mode of observation was described and it was recommended—(1) to observe the radial pulse in the usual way; (2) to count the heart beats and observe the rhythm by auscultation; (3) to observe the radial pulse and auscultate the heart simultaneously; (4) to cause the patient to elevate one or both arms whilst the observer auscultated the heart region so that the effect of increased extra ventricular pressure might be gauged. All the cases taken as illustrative were investigated by the sphygmograph and the various forms of irregularity and their mode of production were described. The associations of cases of cardiac arhythmia were then considered: (1) dyspepsia; (2) syphilis; (3) osteo-arthritis; (4) disturbances of the sense of hearing and naso-pharyngeal affections (illustrative cases were given under this head which tended to show that a reflex from the naso-pharyngeal tract and from the neighbourhood of the auditory mechanism was often a potent cause of cardiac irregularity); (5) influenza (instances were given of special forms of arhythmia due to the disturbance of the nervous mechanism by this cause; (6) mental disturbances and the effects of severe nervous shock; (7) cases without notable associations (these were parallel with those cases of rapid heart which showed no notable morbid alliances). In the second category were considered ten cases of Graves's disease, in some of which the cardiac irregularity was of the most pronounced degree. It was shown that in such

the patient might be perfectly unaware of any irregular movements of the organ and it was also shown that subjective suffering was not in any way correlative with the evidences of arhythmia. It was urged that the attention of the subject should never be drawn to his irregular heart. Dr. Sansom submitted that all forms and degrees of irregularity, from the slight to the most pronounced, were to be ascribed to disturbances of the nervous mechanism of the heart. The associations in cases of irregular heart strikingly resembled those in rapid heart. Both such forms of disturbance of the heart rhythm were to be found in cases of osteo-arthritis, in those of aural, nasal, and pharyngeal disorder, and especially in Graves's disease. The cases without notable associations might point the lesson that whilst the central disturbance from which the other affections of Graves's disease were offshoots brought about in the majority abnormal rapidity of the heart's contractions, in the minority it induced irregularity. So in many instances arhythmia cordis might be considered a "forme fruste" of Graves's disease, only it was better to express it that the *ensemble* of the phenomena of Graves's disease was due to the extension from the area of disturbance, which was focally that portion of the nervous system which was concerned with the regulation of the heart's movements. In all such cases, whether manifesting tachycardia or arhythmia, outbreaks of dyspnœa or of gastro-intestinal disturbance—vagus storms as he had termed them—were frequently observed. It seemed probable that whilst sudden overstrain was more likely to produce a tendency to morbid acceleration, the more chronic forms of mental depression tended to be associated with irregularity. When a sudden shock or extensive disease, however, specially involved the afferent fibres of the vagus, pronounced cardiac arhythmia might be the result. Dr. Sansom said that one of the objects of his paper was to insist that cardiac irregularity might be perfectly devoid of really dangerous significance. He thought that nasal and aural troubles were the commonest reflexes which started the cardiac derangement. In the diphtheritic cases it was difficult to eliminate the myocarditis which might be present. Though irregularity often ceased with the onset of acute disease it usually returned after the latter passed away. Intermission was generally persistent and was serious only to a minority. He had related elsewhere many cases of irregularity coexistent with high tension. He concurred entirely in the view that the irregularities in cases of cardiac disease were ingrafts of a neurotic character on the cardiac lesion and were not part of the disease itself. Many cases of mitral stenosis were accompanied by irregularity, due to an interference with the transmission of nerve impulses between the auricle and the ventricle. The irregularity in typhoid fever was

probably due to myocarditis. Fatty degeneration of the heart was not usually accompanied by irregularity, contrary to what was once the accepted teaching. The objects of his paper were to show that cardiac irregularity might co-exist with a sound and good organ, and that irregularity was one of the not infrequent associations of Graves's disease. (The Lancet, December 17, 1892, p. 1385.)

MITRAL DISEASE.—Morphine in.

Dr. Hervouet records in the *Bulletin Médical* the results of his studies of the action of morphine in cases of mitral insufficiency. In aortic insufficiency and stenosis all authors agree as to its value. In mitral lesions, when other means fail, morphine may be tried, in order to calm the dyspnœa and nervous symptoms and induce sleep. In certain cases where cardiac remedies are of no service, or even injurious, then morphine will calm and stimulate, easing the dyspnœa and causing the other remedies to act. If we use it in asystole, it is well to combine digitalis with the morphine. Caffeine, on account of its stimulating action on the heart, is of especial use in replacing the injections of morphine, when it is desired that the patient should not become habituated to its influence. It may be employed at the same time as the morphine. Morphine should, however, in every case be used with great prudence. More than one-sixth of a grain should not be given at a time; often half that amount will be sufficient. It is more advisable to repeat the injections frequently than to administer large doses.—*The Canada Lancet*, p. 71, vol. xxv., No. 2, 1892. (The Practitioner, March, 1893, p. 216.)

PERICARDITIS.—Treatment by the Icebag.

At the annual meeting of the British Medical Association (1892) Dr. D. B. Lees read a paper, consisting mainly of the narratives of seven cases in which this method of treatment had been adopted. Dr. Lees began his paper by drawing attention to the serious consequences, in damage to the cardiac muscle and the formation of adhesions, which too often resulted from a pericarditis after apparent recovery. He pointed out that the present treatment of pericarditis was not merely practically *nil*, but that it was not seldom actually a minus quantity, for the occurrence of this complication often induced the physician to give up the use of salicylates on account of the supposed danger of their employment in this condition. After a considerable experience in the use of ice in the treatment of pneumonia, he had ventured to try it for pericarditis, and with very satisfactory results. It is clear that if the local application of ice has any influence in checking the subjacent inflammation, in so far it

will tend to relieve the heart from depression, and thus act as a true cardiac tonic. Whether it does this or not can only be discovered by cautious employment of the icebag, and careful observation of the result. In conclusion, Dr. Lees said:—What I have narrated is sufficient, I think, to prove that the icebag, when used with reasonable caution, is a safe application in pericarditis, that it is usually liked by the patient, that it tends to check the violence of the local inflammation and to hinder effusion, and that it may even help to cause absorption of effusion which is already present. It acts *cito, tuto, et jucunde.* In view of the extreme importance of preventing, if possible, damage to the structure of the heart, I believe that the introduction of the icebag into the treatment of pericarditis will be found a great advance in therapeutics. (British Medical Journal, February 18, 1893, p. 344.)

SYPHILIS.—Arterial Disease in.

Syphilitic arterial disease has been for many years past a well-recognised affection. None of the arteries are, so far as I know, exempt from liability, although, according to our present knowledge, some suffer in larger proportion than others. Both the aorta and the pulmonary artery may suffer, as also may any of the systemic branches sufficiently large to have received distinctive names; and there is abundant reason for believing that the smaller and even microscopic arteries are at least as vulnerable as their larger relatives. The syphilitic process may involve the entire thickness of the vascular walls, but it commences in the inner or outer coat and always mainly implicates one or other or both of these. I suspect that its not infrequent commencement in the inner coat is due to direct inoculation by virus circulating in the blood, and am inclined to agree with Mr. Hutchinson that when the outer coat suffers primarily it is from the fact that the vessel has become involved in lesions originating in the vicinity. Syphilitic disease causes thickening and irregularity of vessels, with tendency on the one hand to aneurismal dilatation and rupture and on the other to stenosis and more or less complete obstruction by thrombosis. The consequences which would naturally follow such conditions are derangement of circulation and impairment of nutrition in the parts to which the diseased vessels are distributed, with on the one hand softening or some equivalent change, and on the other hand hemorrhage, either from the rupture of a diseased vessel or in connection with diffused degeneration of tissue. It is curious that although these syphilitic lesions are occasionally widely distributed they usually occur in limited districts, the vessels elsewhere remaining wholly or for the most part healthy. (Dr. Bristowe's Lettsomian Lectures, Lancet, Jan. 14, 1893, p. 73.)

SYPHILITIC DISEASE OF VEINS.

I am not aware that any special attention has been given to this affection, and I confess that I have very little to say about it. Mr. Hutchinson, in his book on syphilis, gives a short account of "periphlebitis as a consequence of syphilis," and without quoting his description I may say briefly that I have notes of a case or two which probably belong to the same category; especially that of a gentleman between forty and fifty years of age who had a chancre twenty-five years previously, who had had what he termed "boils" on his legs, leaving deep scars, some ten or fifteen years later, and, apparently originating about the same time, large varicose veins in one leg below the knee. He consulted me for a very serious syphilitic outbreak limited to that leg in which unquestionably the veins were implicated. I recollect also a very interesting case which I published some years ago of a man of middle age who came to me with symptoms suggestive of an intra-thoracic tumour. He had obstruction of the superior cava or both innominates, with great dilatation of the veins of the neck and of those in the thoracic walls, much congestion and œdema of the head and neck and severe dyspnœa. But he had had syphilis, as was shown by ulcerative destruction of the palate, and he was cured speedily by anti-syphilitic treatment. I assume that in this case there were gummata about the base of the heart obstructing the veins either by pressure or by extension of disease into their walls. I may further point out that the cerebral venous sinuses are often similarly involved in the progress of gummatous affection of the dura mater. I cannot call to mind any case in which such obstruction has of itself led to any serious consequences. Dr. Hawkins's case of apparently syphilitic obstruction of the renal arteries has brought to my recollection a case of thrombotic obstruction of the renal veins which may have been syphilitic, and is certainly worth recording. The case was that of a woman aged thirty-seven, on whom I made a post-mortem examination in March, 1852. She had tubercles in her lungs but none anywhere else. The kidneys were much enlarged, measuring about $5\frac{1}{2}$ in. in length, $3\frac{1}{2}$ in. in breadth, and 2 in. in thickness. Their surfaces presented several irregular depressed blackish patches. On section the cortical substance was pale, succulent, and in many places reticulated, as though the tissue had become rarefied and the interstices filled with serum. "They presented several opaque whitish circumscribed patches, which had the appearance of tubercular, or perhaps more properly of fibrinous, deposits, being firmer and less cheese-like than the former," and they corresponded to the depressions seen on the surface. The renal veins were much thickened and in their whole extent filled with old decolourised adherent clot. On tracing the branches

into the kidney these, almost to their smallest ramifications visible to the naked eye, were similarly filled. The clots were prolonged from the veins into the cava, where they presented rounded ends which were turned upwards in the direction of the bloodstream and came into contact with one another and partly blended. I gave a microscopic description of the parts which it is not worth while to refer to here. In the above account I have quoted my original words. I have no doubt now, as I evidently thought then, that the patches in the kidneys were not tubercular. Were they gummata or simply old infarcts? Had the obstruction been in the arteries there could be little difficulty in deciding in favour of the latter alternative. But venous obstruction does not, so far as I know, cause infarcts. The patches were just like gummata in the spleen or liver; and when I used the expression "fibrinous deposits" I was undoubtedly thinking of what were then termed "knotty tumours" of the liver—tumours which we now know to be syphilitic. (Ibid., January 28, 1893, p. 183.)

ULCERATIVE ENDOCARDITIS IN GONORRHŒA. His (*Berliner klin. Wochenschr.*, 1892, No. 40, p. 994) has reported the case of a man, nineteen years old, who had an attack of gonorrhœa that yielded in the course of three weeks to injections of mercuric cloride 1 : 4000. At no time was there special difficulty in micturition, pain in the perineum or testicles, palpitation of the heart or shortness of breath. A short time later an attack of syncope occurred. Two nights after this the man had to ride a considerable distance; during the journey he complained of feeling cold; on the following morning he had a distinct chill. The urethral discharge returned. No abnormality of the heart or lungs was detected. Three days later, numerous red spots, that disappeared upon pressure, appeared upon the face, the forearms, the hands, the legs, the feet, and the trunk. Examination again failed to disclose the existence of a heart-lesion. The temperature soon rose to 104°. More red spots appeared over a wider distribution, some being hemorrhagic. The glands below the right angle of the jaw became enlarged. The area of cardiac percussion-dulness was now found to be increased, while a loud, blowing systolic murmur was to be heard over the apex and the pulmonary artery, but with greatest intensity over the aorta. There was no involvement of the joints. The urine was excreted in unduly large amounts, but contained no abnormal constituents. Hearing became impaired; the sensorium became obscured; profuse perspiration occurred; a new crop of ecchymoses appeared; the patient gradually failed, and death took place from heart-failure. At the autopsy, the aortic semilunar leaflets presented the lesions of ulcerative

endocarditis. The heart was enlarged. At the apex of the left ventricle was a softening, puriform thrombus. The pubic plexus of veins contained old thrombi. The left kidney and the spleen presented numerous infarcts. There were small hemorrhages in the liver, in the testicles, in the lungs, in the prostate, in the cerebellum, in the medulla oblongata, beneath the skin, and beneath the serous and mucous membranes. (Medical News, December 3, 1892, p. 636.)

AFFECTIONS OF THE RESPIRATORY SYSTEM.

DYSPNŒA.—Treatment of.

Dr. Em. Tournier classifies the causes of dyspnœa as cardio-pulmonary, cardio-hepatic, and cardio-paretic. He places the toxic dyspnœas under the heading of cardiac dyspnœas, more particularly of arterial origin. The cardio-pulmonary dyspnœa, a dyspnœa of mechanical origin, when the phenomena of pulmonary stasis are predominent is relieved by mild revulsives, or cupping, sinapisms as applied to the chest, rest, digitalis after a few days of a milk diet preceded by a saline or drastic purgative. Venesection, eight to ten ounces, may exceptionally be required. The digitalis should be administered in large doses, and should not be long continued; even better is the use of digitaline in that the action is more rapid. With cardiac disease, particularly of the arterial variety with active pulmonary hyperæmia, digitalis must be avoided, and intestinal derivatives and counter-irritation over the chest be made use of. In dyspnœa of nervous origin varying modes of treatment must be employed; morphine given hypodermatically, especially in the paroxysmal dyspnœa of those suffering from aortic disease. Albuminuria is not in this instance a contra-indication to its use, but a condition demanding that it be used prudently. In the dyspnœas of toxic origin the food must be as free as possible from substances producing ptomaïnes, eliminating those already in the intestines, and preventing them from entering the blood. The first indication is best fulfilled by milk, two to three quarts daily. Keeping the kidneys in activity—diuresis—meets the second, while the third indication demands intestinal antisepsis, which diminishes the work of the liver in its destruction of ptomaïnes that are produced. Here benzo-naphthol is a powerful agent to prevent fermentation, and, at the same time, according to Huchard, slightly diuretic. If the attack is very violent, cupping, injections of morphine, inhalations of oxygen, or especially inhalations of iodide of amyl, associated or not with chloroform, may be required. Besides, not only is the dyspnœa treated, but the causative pathological condition of which this is

a symptom, the arterial sclerosis, must receive methodical and persevering treatment by the iodides.—*Revue-générale de Clinique et de Thérapeutique*, 1892, No. 29, p. 449. (The American Journal of the Medical Sciences, December, 1892, p. 717.)

PACHYDERMIA LARYNGIS AND PHTHISICAL PACHYDERMIA.—Differential Diagnosis.

The diagnosis of pachydermia, when situated in the inter-arytenoid region, is not very difficult. It seems to me, however, very important that we should distinguish if possible between the condition as associated with phthisis and the—if I may be allowed the term—idiopathic variety. A localised tumour in this region is comparatively common in cases of phthisis; true idiopathic pachydermia is extremely rare. One might be inclined to think that the presence or absence of other evidences of phthisis would be sufficient to differentiate the two conditions, but this is not the case. In writing of these iter-arytenoid tumours as they occur in phthisis, Stoerk says, "They are only of diagnostic value in the very first stage of tuberculosis, when, indeed, all signs of pulmonary disease are still absent, and when even the most experienced can find no trace of it. In such cases I believe the occurrence of a granulation-like tumour on the posterior wall of the larynx is an unfailing sign of developing tuberculosis." I must say that from my own experience I can corroborate Stoerk's statement, although one author at least has described neoplasms similar in character to those usually found in phthisis as resulting from chronic nasal and naso-pharyngeal disease, and disappearing after its cure. I do not, however, think that others have observed a similar chain of events, and most authorities are undoubtedly at one with Stoerk. Occasionally an ulcer in the inter-arytenoid region has its upper margin much thickened, and from it may even arise a tumour-like excrescence. Such ulcers may be tubercular or syphilitic—usually the former—but sometimes apparently depend upon the presence of both constitutional diseases. From the above it will be seen that in the diagnosis of idiopathic inter-arytenoid pachydermia we have to exclude the localised tumour, which indicates tuberculosis, and the presence of an ulcer with a thickened upper margin. Practically these are the only two conditions which can give rise to a mistake, because the posterior wall of the larynx seems to enjoy a special immunity from neoplasms, both innocent and malignant, although of course it may become invaded by extension of cancer from adjacent parts. In laryngoscopic examination I would consider the following points of importance in arriving at a differential diagnosis :—

Idiopathic Pachydermia.	*Inter-arytenoid Tumour of Phthisis, or, if preferred, Phthisical Pachydermia.*
(1) Swelling arises gradually, without any very definite margin so far as shape goes (although the colour is distinctly defined).	(1) Swelling is distinctly a tumour, with more or less well-defined margin.
(2) The colour is distinctly defined, being of a whitish grey with just a tinge of pink.	(2) The colour is usually red or pink.
(3) The outline is smooth, or finely granular with sometimes a furrow or cleft.	(3) The outline may be smooth or coarsely papillary.

(Dr. P. McBride, Edinburgh Journal, April, 1893, p. 918.)

PHTHISIS IN LATER ADULT LIFE.

Dr. Hector Mackenzie concludes a post-graduate lecture, based on the study of forty-two cases which proved fatal at ages varying from fifty-five to seventy-two in all of which post-mortem examinations were made, with the following summary :—(1) The disease, while relatively less frequent than in early adult life, is still not uncommonly met with. (2) It more commonly attacks males than females. (3) The influence of heredity, although less marked, can still be traced in some of the cases. (4) The disease is essentially chronic in form. (5) It is in a considerable number of cases limited to one lung. (6) Tubercular disease of the larynx and intestines is found in as great a proportion of the fatal cases as in earlier life. (7) The onset is usually insidious. (8) Cough with emaciation and debility should always suggest the possibility of phthisis in an elderly person. (9) Hæmoptysis is less frequent except in the later stages, when there is considerable risk of profuse and possibly fatal hemorrhage. (10) The symptoms of disease are sometimes quite misleading being abdominal in type, suggestive of malignant disease, and generally arising from intestinal or peritoneal tubercle. (11) Sometimes the physical signs are best marked at the apex posteriorly. (12) Sometimes the disease is complicated with chronic bronchitis and emphysema which mask the physical signs, and then is easily overlooked, unless the sputum is examined for bacilli. (13) The duration of the disease is essentially protracted but difficult to determine clinically on account of the gradual onset of the illness. (14) The maintenance of strength and nutrition, and the quietness of the pulse are most encouraging as regards prognosis, while the opposite and the occurrence of complications are of grave omen. (Medical Press and Circular, October 5, 1892, p. 344.)

PICROTOXINE IN THE NIGHT SWEATS OF PHTHISIS.

L. D'Amore (*Progress Medico*, 1892, No. 1; *Wien Med. Pr.*, 1892, No. 13; *Les Nouveaux Remèdes*, June 24, 1892) gives the result obtained by the use of picrotoxine and atrophine in the night-sweats of phthisis. He gives the picrotoxine in granules containing $\frac{1}{160}$ of a grain each. The author reports forty-five cases thus treated. In fifteen advanced cases he gave without success two pills of atropine containing $\frac{1}{65}$ of a grain each daily; in these cases, two to four granules of picrotoxine, continued for several days, relieved the condition very much. In twenty cases, with less pronounced lesions, atropine did well in some and failed in others; but picrotoxine, used for several days, checked the sweating completely. Finally, in ten early cases, the results were equally good from the use of either drug. The writer explains these differences by the cause of the sweating in the several stages of the disorder. In the early stages much of the sweating is due to the action of the secretory nerves, and these are controlled by atropine; later the sweating is due more to paralysis of the vaso-motors, and as atropine does not act upon these it loses its power, while picrotoxine, which does act upon the vaso-motor system, retains its value in the advanced stages. —*Therapeutic Gazette*, September, 1892. (Edinburgh Medical Journal, November, 1892, p. 479.)

PLEURISY AND THORACENTESIS.

Lereboullet (*Gaz. hebd. de Méd. et de Chir.*, 1892, No. 20) urgently recommends the proper selection of cases for thoracentesis. He always begins the treatment of pleurisy by combating the pain, dyspnœa, and cough by applications of dry or wet cups, and the use of purgatives, diuretics, and milk diet. He does not apply blisters, but waits for defervescence, which should appear in from six to ten days. If the effusion is not excessive, and at the expiration of this time commences to disappear with a certain rapidity, thoracentesis is not indicated, and blisters which now are of service, will suffice to cure the patient. Should the effusion remain stationary thoracentesis will be indicated. Puncture, however, is positively indicated in the acute sero-fibrinous pleurisy (pleuritic fever of M. Lancereaux) where the effusion steadily increases, with marked displacement of the viscera and pronounced dyspnœa. Even here medical treatment should be instituted in the beginning, and continued during the febrile period if the effusion remains moderate, but thoracentesis should be performed, not only should any accident supervene, but even if the diminution of the effusion does not commence simultaneously with the defervescence. Alongside of this form

of pleurisy is found the so-called latent or rheumatoid form associated with a sero-plastic effusion. This is regarded to-day as tuberculous in nature, and only the puncture will result in a cure. The sooner it is performed the greater will be the chances of recovery. (The American Journal of the Medical Sciences, October, 1892, p. 487.)

PLEURITIS.—Etiology of.

Ludwig Ferdinand (Prince). "A contribution to the etiology and pathology of pleuritis."—*Deutsches Archiv für klin. Med.*, Bd. L., 1893. 2. Goldscheider. "On the bacteriology of acute pleuritis."—*Zeitschrift für klin. Med.*, Bd. XXI., Heft 3 und 4. Prince Ferdinand gives the results of a careful bacteriological examination of twenty-five cases of exudative pleurisy. His object has been not merely to establish the relation between the presence of micro-organisms and the existence of a serous, sero-fibrinous, purulent, or sanious effusion in the pleural cavity, but to show also the significance of the particular organisms present in relation to the macroscopic appearance of the fluid and its bearing upon prognosis, and upon these relations to found indications for the treatment which each case requires. The method of procedure was to make one or more exploratory tappings of the chest, and with the fluid obtained to make stained cover-glass preparations for microscopic examination, plate cultures of any organisms that the fluid might contain, and inoculation experiments upon mice. The character of the effusion was serous in nine cases, sero-purulent in one, purulent in twelve, and sanio-purulent in one case. Five of the serous effusions contained no organisms. Four of these cases were tuberculous, and the fifth, a case of influenza with pleuro-pneumonia, had also tubercle in the lungs, though not apparently the exciting cause of the pleurisy. In two of the serous effusions the pneumonococcus was found, and in two the staphylococcus pyogenes. In another case of sero-purulent effusion the diplococci of pneumonia were present, and among twelve empyemæ in two the only organism discovered was the diplococcus pneumoniæ. In the other ten empyemæ, five were pure streptococcus exudates, two contained streptococci and diplococci, and one streptococci with staphylococci; two cases were pure cultures of tubercle bacilli. In one case the effusion was sanio-purulent, and contained straphylococci, proteus, and sarcinæ. Two cases were not used for statistical purposes. Six of the twenty-three patients died—one, a case of bacteria free serous effusion after influenza, and five cases of empyema (two streptococcus exudates, two tubercle bacillus, and one diplococcus and streptococcus). Spontaneous resorption occurred in five cases—one a tuberculous serous exudate without organisms, one a serous staphylococcus

exudate, and three pneumonococcus exudates, one being seropurulent and the others serous. Aspiration alone was sufficient to induce spontaneous resorption in one staphylococcus effusion, and in two tuberculous bacteria free serous exudates. Simple thoracentesis was performed in a case of tuberculous empyema ending fatally. Resection of ribs was necessary in ten cases, and of these two died, one a tuberculous empyema, the other from sepsis. The conclusions drawn from these cases are as follows:—(1) The majority of serous exudations contain no micro-organisms; (2) the majority of bacteria free exudates are tuberculous; (3) serous exudates may contain pus excitants without becoming purulent; but (4) streptococcus exudates must be excepted; (5) while the majority of empyemæ are caused by the streptococcus pyogenes, other pus excitants may be a cause of empyema, so that empyema must be regarded as the product of special circumstances following the infection of the pleura; (6) the infection of the pleura is connected in most cases with a lesion of lung tissue, permitting the penetration of pathogenic germs into the pleural cavity. The most favourable prognosis can be given in serous metapneumonic effusions; the worst in tuberculous and septic cases, from the gravity of the fundamental lesions. As to treatment, all streptococcus exudations, both pure and mixed forms, require resection of the ribs as soon as the diagnosis is satisfactorily established; even if the fluid is still serous, purulent metamorphosis may be predicted with certainty. In diplococcus empyema the urgency for operation is not the same, for the possibility of its absorption is now well established, and the chance of this termination may be given. But if three weeks after the pneumonic crisis the exudation is stationary, aspiration should be tried, and afterwards, if necessary, the more radical operation. In serous exudations exploratory puncture should be made, and after bacterioscopic examination of the fluid the question of aspiration or of more energetic procedure can be decided. Goldschieder discusses the bacteriology of serous exudations in connection with four cases which he reports. In three of them which in their further course did not become purulent streptococci were found, and in one case staphylococci and no purulent change in the fluid. (Dr. Robertson's Abstract in Medical Chronicle February, 1893, p. 328.)

THROMBOSIS OF THE PULMONARY ARTERY WITHOUT INFARCTION.

At the Pathological Society, on January 31, 1893, Dr. Pitt discussed the subject of Thrombosis of the Pulmonary Artery without Infarction. He showed the left lobes of two lungs, the main pulmonary arteries of which were blocked, nutrition being

maintained by the collateral blood-supply from aortic branches. The first specimen was obtained from a man aged twenty-two suffering from chronic phthisis and peritonitis with effusion. The left pulmonary artery was completely occluded by a thrombus, which was adherent over the greater part of the circumference of the vessel; the corresponding part of the lung was free from abnormal appearance. The second specimen was obtained from a child aged five, who died of sarcoma of the kidney. The left pulmonary artery was occluded by soft growth, but there was no extravasation of blood or other abnormal appearance in the lung. The general opinion seemed to be that extravasation of necessity followed pulmonary thrombosis, but an examination of a number of post-mortem records fail to bear out this view, and it was only exceptionally that pulmonary hemorrhage followed thrombosis experimentally produced. From the post-mortem records at Guy's Hospital, out of forty-six cases of pulmonary thrombus only eighteen had associated hemorrhage extravasation. Out of twenty cases of embolism, in only six did blood exude. When the main artery was blocked hemorrhage was less common than when a small vessel was concerned. Of eighteen cases of infarction, in only three was the main artery blocked, whilst in twenty-eight cases of thrombosis without infarction the main artery was blocked in sixteen. In other words, in thrombosis of the main vessel only a sixth of the cases showed associated infarction, whereas with thrombosis of a small vessel in quite one-half infarction occurred. Clots in the pulmonary artery were more frequently thrombi than emboli. Out of sixty-seven cases only twenty-one appeared to be embolic, and in only ten of the rest was clot found anywhere else to furnish an embolus. He believed that pulmonary thrombosis was more frequent than thrombosis of any other artery or vein of the body. (The Lancet, February 4, 1893, p. 251).

TUBERCULOSIS.—General and Local Treatment by Inhalation.

Dr. I. Neudörfer, after discussing fairly Prof. Koch's discoveries and arriving at a just estimate of their present failure when measured by the requirements of the practical physician, comes to an exemplification of his own method. The advantages are; (1) that its application is not limited by age, sex, or condition; (2) that a marked improvement is clearly manifest after eight to fourteen days' treatment. Although he does not believe that there exists a specific for tuberculosis, yet there are many remedies that favour the cure of this malady, and indeed that it is a curable one, basing this opinion upon bacteriological and upon empirical clinical evidence. The remedies upon which

reliance must be placed should be not only harmless but beneficial to healthy and diseased lungs; they should be capable of reaching the seat of the difficulty and should have an influence in preventing the growth and increase of tubercle bacilli, and, indeed, to destroy them, and also to give the organism opportunity to remove them. Believing that the ideal therapeutics of pulmonary tuberculosis consists in the administration of remedies by inhalation, he figures an apparatus which allows the remedy to be inhaled through the nose, but prevents the mingling of the expired with the inspired air. To this apparatus can be attached another for the atomisation of liquids, or for inhalation of liquids dropped upon cotton, the latter being more particularly intended for anæsthetics and analgesics. When chloroform is used an automatic dropper is placed in connection with the cotton-retainer. As the result of experimentation with a large number of substances, he concludes that the number, depth, and rhythm of the respirations should be regulated by the physician —fifty or sixty respirations, at one or possibly two daily sittings, interrupted if necessary, which, however, should not be more than ten minutes in duration. He recommends several formulæ, chiefly combinations of creasote, guaiacol, phenocoll, piperazin, with ether, chloroform, or bitter almond water.—*Wiener Klinik*, 1892, Hefte 4, 5, S. 95—174. (The American Journal of the Medical Sciences, August, 1892, p. 212.)

AFFECTIONS OF THE DIGESTIVE SYSTEM.

ASCITES OF CIRRHOSIS OF THE LIVER.—Treatment of.

Alcoholic cirrhosis of the liver was generally recognised as existing in the large or hypertrophic form, as well as in the small contracted or atrophic form. As to true hypertrophic or biliary cirrhosis, Dr. West believed in its existence in this country, though, as compared with France, it was possibly much rarer. It was worth considering what real clinical evidence there was to prove what was commonly asserted as an established fact, namely, that the small contracted liver was preceded by a stage of enlargement. There was no doubt that the large cirrhotic liver could produce all the characteristic symptoms and run its usual course, even to death. Cases in which a large liver could be actually observed to grow small, and in which at death the ordinary contracted liver was found, were certainly rare. He himself had never been able to watch this occur, though he was not prepared to say that it never did happen. It was a question for clinical observation, and so far clinical

evidence was not forthcoming to prove it. The objects of treatment were twofold: First, to remove the fluid, and, secondly, to prevent its re-forming. The only really satisfactory way of getting rid of the fluid was by paracentesis, and this was so easy, simple, and safe an operation that it was surprising that it had not become a routine method of treatment. As to whether it was preferable to remove it quickly by a large trocar or slowly by a small so-called capillary trocar, his experience showed that rapid removal, provided pressure was maintained for a time by means of an abdominal bandage was, on the whole, most satisfactory for ordinary cases. The so-called derivative treatment by diaphoretics, drastic purgatives, and diuretics was as ineffectual in ascites as in pleuritic or other effusions. The reaccumulation of fluid could only be prevented by the establishment of a collateral circulation. This was a question of time and rest—rest for weeks, perhaps three or four months, was the essential treatment, in order to facilitate the development of this collateral circulation, and in this regard the character of the patient came in for consideration. If he were patient and amenable rest might remove his symptoms, and this was all that was meant by cure. The cirrhotic tissue could not be removed by drugs any more than scar tissue on the skin or elsewhere, but the symptoms might disappear, and, if the patient did not return to his previous habit, a fairly useful life might be maintained, it might be for many years. Dr. West referred to cases of three, five, and eight years' duration. Unfortunately, with the disappearance of the symptoms, the mental stimulus of the fright was lost, and the general experience was that the patients returned to their drinking habits, and soon broke down again. To sum up: Early paracentesis, repeated if necessary, with prolonged rest in the recumbent position, tonics, and good food to support and strengthen, and above all, entire abstinence from alcohol in every form were the essential lines of treatment, and upon these lines the most unexpected improvement or recovery not infrequently occurred; so that ascites as the result of alcoholic cirrhosis could no longer be regarded a condition without hope or remedy. (Dr. Samuel West in the discussion on the Prognosis and Treatment of Ascites, British Medical Association, 1892. British Medical Journal, Nov. 19, 1892, p. 1105.)

Ascites of Cirrhosis of the Liver.—Treatment.

Dr. Bristowe remarked that he had long taken great interest in the subject of the curability of ascites. Some twenty or twenty-five years ago he had written a paper published in the Clinical Society's *Transactions*, in which he gave cases showing the curability of these cases, and in which he pointed out that, in

his opinion, active purgatives were deleterious and diuretics of doubtful efficacy, but that the best means of treatment was to keep the patient at rest, to improve the general health by tonics, &c.; to prohibit alcohol if the cause were cirrhosis, and to tap from time to time. His further experience had confirmed these views. He believed that the cure in cirrhosis was due to two causes :—(1) If the cases were in an early stage, to the improvement in the condition of the liver itself; and (2) to the enlargement of anastomotic veins, by means of which the blood was shunted from the portal system, the liver remaining diseased. He did not object to, but was not an advocate of, abdominal section in cases of tuberculous peritonitis, because, according to his own experience, such cases, if treated judiciously, in large proportion recovered. At any rate, he had known of many recoveries in quite typical cases where the patient had been treated by rest, tonics, good feeding, and good air. He did not oppose paracentesis, or, where suppuration was occurring, abdominal section. In the last place, he should like to express his concurrence with Dr. West's opinion, that in a clinical sense alcoholic cirrhosis of the liver did not begin with enlargement and end in atrophy. Although he had been on the constant look-out for such cases, he never recollected to have met with one in which he had been able to trace this gradual shrinking. (Discussion on the Prognosis and Treatment of Ascites, British Medical Association, 1892. Ibid.)

CHOLEDOCHOTOMY.

The *Deutsche Medizinal-Zeitung* for December 1st summarises an account by Professor Küster, published in the *Archiv. für klinische Chirurgie*, of the case of a woman, forty-nine years old, who for two years had suffered with attacks of abdominal and sacral pain with fever. At first the attacks had been from two to four weeks apart, but had increased in frequency until they occurred every week. In about two hours after the onset there was jaundice. The patient had often found concrements in the dejecta about six hours after the subsidence of an attack. She was emaciated, and her general condition was very bad. The partial efficacy of a course at Carlsbad and the occasional colouration of the fæces were held to indicate closure of the ductus choledochus communis rather than of the hepatic duct. An oblique incision ten centimetres long was made beneath and parallel with the arch of the ribs, and, two concrements having been found in the ductus choledochus communis, they were removed by incising it, the surrounding parts being protected with iodoform mull. The incision into the duct was closed with catgut and the finest silk sutures. In spite of a brisk secondary

hemorrhage on the eleventh day, making it necessary to reopen the wound entirely, the patient made a rapid recovery. Two more stones were passed during the following year, after a course at Carlsbad for a fresh attack and since that the attacks have not recurred. (New York Medical Journal, December 17, 1892, p. 688.)

DIARRHŒA IN CHILDREN.—Drugs in.

At the New York Academy of Medicine on May 12, 1892, Dr. J. Milton Mabbott said: Until recently there seems to have been general consent to the administration of alkalies. But now that we endeavour to promote asepsis and control fermentation by evacuant, dietary and hygienic measures, they are certainly less important than formerly. They are usually given with or soon after feeding. When using pepsin, alkalies should be given midway between feedings. The indications for acids are doubtful. Lactic acid, as proposed by Hayem, is advocated in (1) acute infectious diarrhœa where the stools are numerous, watery, and often foul but yellow in colour; and (2) in green bacillary diarrhœa, for which it is recommended as a specific. Numerous observers have found the reaction of the alimentary canal in healthy infants acid throughout; and Pfeiffer has shown that green stools are associated with alkalinity. Hence, the use of acids would seem to have a rational basis. The dilute mineral acids are commended by many, the dose being one to five drops, administered twenty minutes after feeding. The vegetable astringents have during the last few years been almost discarded. The same is true also of mineral astringents, with a single exception. That exception is bismuth, the subnitrate being the preparation universally esteemed. It is prescribed in much larger doses than formerly, twenty grains every two hours sometimes being given to an infant. Opiates are less used than formerly. They undoubtedly check peristalsis. As peristalsis is increased in diarrhœa, this action is desirable after the bowels have been emptied of their objectionable contents, but highly dangerous before. The other indications for opium are relief of restlessness, pain and tenesmus, and the control of frequent watery passages. Ashby and Wright recommend it in the latter stages, if the passages continue small and numerous. Holt and Crandall always prescribed the opiate separately, so that it may be conveniently increased, diminished or withheld at will; for increasing fever or taxic symptoms call for its discontinuance. It should not be given when the passages are infrequent and of bad odour. A decrease in the number of stools while they become more offensive, contraindicates its use and demands evacuants. (Boston Medical and Surgical Journal, November 10, 1892, p. 458.)

ENTEROPTOSIS.

After giving a historical sketch Krez (*Münch. med. Woch.*, August 30, 1892) refers to Bartel's view with regard to the occurrence together of movable kidney and dilatation of the stomach. If owing to tight lacing the kidney is pushed down the descending portion of the duodenum may be pressed upon and the outflow from the stomach made difficult. In one case recorded by Heller the duodenum was actually found to be dilated. Glénard was the first to point to prolapse of the various organs as a cause of nervous dyspepsia. The hepatic flexure of the colon, the transverse colon, and the stomach sink in position. It is said that enterostenosis may thus arise and that by prolapse of the duodenum a kinking may take place. The frequent displacement of the kidney is only one link in the chain of these displaced organs, and prolapse of the uterus completes the condition. The diagnosis of enteroptosis is made by pressure on the hypogastrium upwards and inwards, when the symptoms are relieved. The author relates the case of a woman whose symptoms were referred to enteroptosis, and who died subsequently of tuberculosis. The stomach was dilated and displaced downwards, and the transverse colon was situated three fingers' breadth below the navel. The hepatic flexure was on a level with the crista ilii. Both kidneys, especially the right, were displaced. The right kidney could be brought forward towards the navel and put back into its place. The liver showed a constriction and was adherent to the diaphragm. The spleen was unaffected. The duodenum was not dilated. The displacement of these organs in the sense used by Glénard is not to be doubted. The author refers to five cases of enteroptosis and analyses the symptoms present. He believes that the whole process is commenced by the sinking of the hepatic flexure of the colon as this has the loosest connections with the posterior abdominal wall. Of the causes of enteroptosis child-bearing is the most important, but others, such as tight lacing, rapid disappearance of fat, riding, dancing, &c., must be taken into account. The author refers also to hereditary predisposition. The treatment is chiefly by the hypogastric belt. (Epitome of the British Medical Journal, December 17, 1892, p. 97.)

HEMORRHOIDS.—Treatment.

I may state that I do not intend to discuss here the operative treatment of hemorrhoids, but only the preventive or palliative treatment, and I will further anticipate by stating that if my directions are carefully followed out I believe the operations for hemorrhoids, either crushing or cutting, will become very rare. I will assume my patient to have a ring of prolapsed rectum protruding through the anus and covered more or less completely

with distended and inflamed veins. According to the severity of the case I should put the patient in bed and in extreme cases apply a few leeches—two or three if necessary. This, followed by a poultice and bathing with a soothing poppy-head lotion, invariably reduces the inflammation, and in the course of a day or two, with rest in bed, allows the hemorrhoids and prolapse generally to be returned. Matters are now much simplified and the patient is in a fair way towards recovery. The next and most important point in treatment is what has to take place at the time of the next defecation. For this I am indebted to the suggestion of a patient. Whether it is generally known or not I cannot say, but I do know its importance has never, in my opinion, been sufficiently insisted upon. This is that the patient must lie on his back when his bowels act, and use a bed-pan or other such vessel. By doing this, from some mechanical cause that I will try to explain, the seat does not come down, there is no extrusion of mucous membrane or hemorrhoids through the anus and the dire train of symptoms I have before described is thus avoided. The reason of this is more or less obvious. The increased and unnatural propulsive power obtained by using the tuberi ischii as fulcra fixed against the stool is lost and there is rather less than the natural propulsive power, together with the loss of the action of gravity. Be the cause, however, what it may, by thus defecating in the recumbent posture, there is neither prolapse of the hemorrhoids nor of the seat, and if the operation be followed by bathing with a soft sponge and warm water and the application of the following ointment you will be surprised at the wonderful improvement that takes place in the patient. The ointment I have just alluded to consists of one part of the red oxide of mercury ointment to three parts of spermaceti ointment. It seems to both cool and soothe the part and if freely used after each motion and in bad cases about once a day besides will cure or greatly relieve hemorrhoids and cure cases of fissure of the anus without having recourse to the knife. Of course, in addition to the above local treatment a little tonic or tonic and aperient may prove useful, such as the sulphate of iron combined with a little sulphate of magnesia and peppermint water or some mineral aperient water. Moreover, it is just as well to avoid the use of acrid, rough and irritating papers for cleansing purposes. (Dr. J. A. Rigby, Preston, The Lancet, December 24, 1892, p. 1430.)

HEPATIC ABSCESS.

Dr. Dabney (Virginia) in an important paper upon this subject refers to statistics of forty-seven cases of antiseptic hepatotomy for hepatic abscess causing ten deaths; in thirty-nine cases of single abscess, one; and in eight cases of multiple abscess, five, and

appends the following conclusions :—(1) That hepatic abscesses rarely occur as a result of injuries or diseases of the bones or other parts of the body, except those directly connected with the portal system of veins, or immediately adjacent to the liver. (2) Ulceration of the bowels is a common cause of hepatic abscess, but neither the morbid changes nor the symptoms are those of simple dysentery. It is probable that in most cases, at least, when the hepatic abscess is due to dysentery the latter disease is amœbic in character. (3) An hepatic abscess may appear in two weeks from the commencement of the dysenteric attack, but the usual time is from four to twelve weeks. It is impossible to say how long a time must elapse after an attack of dysentery before all danger of hepatic abscess is past. (4) Abscesses originating in the bile-ducts and those due to injuries of the liver itself seem to be of comparatively rare occurrence. When due to injury, the abscess usually appears in a few days. (5) Abscesses occurring in connection with general septicæmia or pyæmia are probably nearly always multiple in number and small in size, but in rather more than half of all other cases the abscess is single and comparatively large. Abscesses due to gall-stones, however, are usually multiple. (6) Aspiration occasionally fails to reveal an hepatic abscess, because the needle may not enter it, or the contents of the abscess may be too thick to flow through the needle. (7) There are no means of determining with certainty the presence or absence of adhesions in a given case; pain, tenderness, and œdema over the seat of the liver suggest the presence of adhesions, but are by no means certain proof of their existence. Even the up-and-down movement during respiration of a needle inserted into the liver is not a conclusive proof that adhesions do not exist, as was shown by a case recently under my care. (8) Of the symptoms and signs of hepatic abscess, pain, tenderness, and swelling in the hepatic region are by far the most important. Fever is present in a large proportion of cases, is intermittent in character, and except in pyæmic cases rarely rises above 102·5° or 103°. Jaundice and ascites nearly always denote the presence of dense adhesions or gall-stones. Dyspnœa and cough are frequently present. (9) It is doubtful whether absorption of the contents of an hepatic abscess ever occurs; bursting is of frequent occurrence, the most usual direction being into a bronchus or the pleural cavity. Under expectant treatment death occurs in a large proportion of cases before bursting. (10) With respect to treatment, free incision and drainage give far better results than any other mode. The results of aspiration are rarely satisfactory, nor is aspiration itself entirely free from danger. (The American Journal of the Medical Sciences, August, 1892, p. 150.)

HERNIA, RADICAL CURE.—Mortality of.

From recent statistics it is easy to see that the danger to life from the operation has diminished to a minimum. Svensson and Erdmann had one death among 106 cases—a woman who died on the tenth day of acute enteritis and nephritis, when the wound was completely healed. Lucas-Championnière had a single death among his 120 cases. Macewen lost one patient from scarlet fever, out of his ninety-eight. Bassini, from his 250 cases operated upon, lost but one, which died of pneumonia when the wound had aseptically healed. Among our 119 radical operations, only a single death has taken place ; and that from pulmonary embolism with bilateral infarcta, on the fifteenth day after the operation, when the wound was completely healed. (Kocher, Annals of Surgery, December, 1892, p. 518.)

INGUINAL HERNIA.—Radical Cure.

Where the hernia is larger and where the external oblique has become a good deal stretched, I perform an operation which is in its essence Bassini's. After freeing the sac and returning its contents its neck is transfixed, ligatured and stitched to the abdominal wall, in a manner described by Barker. The external oblique is then slit up as far as the internal ring, the incision being carried a considerable distance away from Poupart's ligament. The inguinal canal is thus fully exposed, and the cord is then freed from its coverings as high up as possible. It is held forwards by the assistant, and then a series of stitches are passed through the internal oblique and conjoined tendon (generally four or five in number) above and including Poupart's ligament below, in the manner introduced by Macewen. When these are tied the inguinal canal is completely closed, the only communication with the abdomen being at the point of exit of the cord, which is now above the middle of Poupart's ligament. The cord is now laid on the surface of the internal oblique and the incision in the external oblique is closed by a bootlace suture of fishing gut, sufficient hold of the tendon being taken to render it tense over the cord and only enough room being left at the external ring to allow the cord to escape. It is thus evident that for a hernia to find its way into the scrotum it must push its way through along the cord and then burrow along dense cicatricial tissue for two or three inches till it reaches the external ring. The operation as I have described it is in its essence Bassini's, but it is not carried out exactly as he describes ; in fact, it is a combination of various operations. Thus the method of cutting off and tucking up the sac and the use of silk is borrowed from Barker ; the principle of bringing the internal oblique to Poupart's ligament behind the cord is Bassini's, but the mode in which the stitches are applied is borrowed from

Macewen; the use of silkworm gut for the incision in the external oblique is from Stanley Boyd; the bootlace suture I used myself, but I find that Boyd had also used it. I have now performed a large number of operations by the former plan and some twenty by the latter, and, while I have lost none, the results are, as far as I can judge, perfect. In none of them, with the exceptions I have already mentioned, is there any tendency to recurrence, and those done by Bassini's method are particularly firm and satisfactory. In view of such results, which have been obtained also by other surgeons, it is curious that many patients with herniæ well suited for operation are advised to be content with a truss, and that some surgeons still say that the so-called radical cure of hernia is not really a radical cure. I can only think that the origin of the latter opinion is partly from the observation of operations imperfectly performed and partly because the patients are ordered to wear a truss afterwards. The usual fault committed in the operation is, I think, that the internal oblique and conjoined tendon are not separately attached to Poupart's ligament, but that the stitch is made to include the internal pillar and the conjoined tendon at the same time. The results of that procedure are, so far as I have seen, unsatisfactory. A much better repair of the inguinal canal is got by bringing the conjoined tendon to Poupart's ligament independently of the external oblique. I do not think that it is so much the adhesion between Poupart's ligament and the edge of the internal oblique and conjoined tendon which prevents the recurrence of the hernia as the adhesion between the external oblique and the structures beneath it in a new position, which prevents the conjoined tendon slipping up again and leaving the inguinal canal open. The second reason, I think, is that some surgeons recommend the patient to wear a truss afterwards. This is radically wrong. If the repair is properly accomplished the only effect of the truss will be to cause absorption of the new material thrown out, and I always insist on the patient leaving off all support in about two months after the operation and only wearing a light bandage up to that time. (Mr. Watson Cheyne, The Lancet, November 5, 1892, p. 1040.)

[See also article by Mr. Watson Cheyne "On the Radical Cure of Femoral Hernia," at p. 316 of this volume of the *Retrospect.*]

PANCREATITIS, ACUTE.

Dr. Frank L. Day, of Providence, R.I., reports a case of pancreatitis with hemorrhage which terminated fatally, and then makes the following general remarks upon the disease :— Acute pancreatitis is probably of more common occurrence than has been thought. It is not improbable that it is a relatively frequent factor in the course of many obstinate cases of impaired

digestion, gastric and duodenal. If catarrh of the bile-duct is common, by extension from the duodenum along the common duct, why should the pancreatic duct escape? So anything that causes gastro-duodenal inflammation may lead to pancreatic inflammation: Thus alcoholism, and irregular or excessive ingestion of food are among the most frequent excitants. Hemorrhage into the pancreas, from injuries or other causes, may be a cause. The hemorrhage, on the contrary, may be consequent upon a preceding inflammation. *Symptoms.*—The most prominent common symptom is deep-seated pain in the upper part of the abdomen, radiating upwards and backwards —often sudden and intense. It is due either to (1) pressure on the solar plexus—when it is paroxysmal, colicky, and accompanied by great anxiety and oppression and often by syncope: (2) or the pain may be due to a localised peritonitis, for the front of the pancreas is covered with peritoneum (the posterior layer of the lesser omentum). In this case the pain is continuous, circumscribed and greatly increased by deep pressure. Nausea, vomiting and retching may accompany or follow the pain. There is constipation and often free fat in the stools and urine; usually little, if any, temperature; often extreme emaciation. Pallor; restlessness; thirst; a rapid, compressible pulse; a furred tongue,—all attest the seriousness of the illness. The symptoms are modified by the pathological condition: pancreatic hemorrhage may occur independent of inflammation—*inferentially*, by analogy, due to embolism or aneurismal dilatation (this is purely theoretical. Here the symptoms are those of sudden collapse, progressing to a fatal ending in a few minutes or hours. Again, as is probable in the present case, the fatal hemorrhage, with its attending collapse, may be the sequent of a pre-existing pancreatitis; and the organ, at the necropsy, show interstitial inflammatory changes, as well as evidence of hemorrhage. Many of these cases give a history of previous digestive disturbance, more or less protracted. The pain, from being localised in the epigastrium or upper abdomen, may later become general. Tympanites is common. *Diagnosis.*—The diagnosis of the sudden, very acute attack involves causes of collapse located in the upper abdomen: (1) Most frequent, peritonitis from perforation of (*a*) gall-bladder or ducts (this would give a history of colic, jaundice, tumour in region of gall-bladder, enlarged liver, and rigours); (*b*) ulcer or malignant disease of stomach, duodenum, liver, omentum or colon (easiest excluded by absence of previous hemorrhage by mouth or rectum, pain relative to ingestion of food, pre-existing tumour, cachexia, &c.) (2) Irritant poisons: History of case and character of vomitus help us. (3) Intestinal obstruction: History of case and presence or absence of obstipation aid us.

Here the seat of tumour is rarely epigastric ; and there is not usually localised tenderness nor general tympanites. Test by trying to inject the colon. If the diagnosis of the final hemorrhage is difficult, much more so—even impossible—may it be to recognise the disease in its earlier stages, before hemorrhage, suppuration or gangrene occur. For, besides the hemorrhagic type, there is an "acute suppurative pancreatitis," its symptoms differing but little, save that it is usually more protracted. Pancreatitis occasionally ends in gangrene, and we then have an "acute gangrenous pancreatitis." There seems to be no way to distinguish these forms at the bedside ; it is left for the necropsy to do that. Recovery from acute pancreatitis, in the early stages, is impossible, but with the liability of recurrence. Treatment is entirely palliative, unless to evacuate pus from the omental cavity. Whether a suppurating or gangrenous organ can be removed and the patient live, is an interesting problem in advanced abdominal surgery. (Boston Medical and Surgical Journal, December 15, 1892, 570.)

[The reader is referred to an abstract of Dr. Fitz's Middleton-Goldsmith lectures on this subject in vol. c. of the *Retrospect*, p. 192.]

PENETRATING ABDOMINAL WOUNDS.

Dr. F. H. Markoe, Surgeon to the Belle Vue and St. Luke's Hospital, New York, embodies the following conclusions in a paper on the subject: (1) That for rational and scientific treatment the proof of penetration must be absolute, and can only be obtained ocularly (Dalton) by the introduction of something from without or the escape of something from within (Otis). (2) That in the line of exploration the probe is of limited value, and, in fact, often misleading, doing harm by giving a false sense of security ; that the same is true of even digital examination, and "that there is no absolute distinctive sign of wounds of either of the abdominal viscera, save the escape externally of its secretion or its contents." (3) That the absence of shock does not prove the absence of grave intra-abdominal lesions, and that when present it is often as much emotional as physical, yet sometimes cannot be differentiated from the signs of hemorrhage or beginning sapræmia. That it is frequently an evanescent condition which only proves fatal in combination with other evils, and that "its intensity or continuance even are not standards by which the nature of the injury can be determined." (4) That a small parietal wound is not incompatible with extensive intraperitoneal injuries or fatal extravasation, or immediate obstruction from reflex disordered intestinal action, and may afford an opportunity for partial protrusion with intramural incarceration, resulting fatally from immediate

strangulation or remote obstruction. (5) That visceral protrusion and intraperitoneal lesions not embraced in the protrusion may coexist, and on the other hand, active hemorrhage can occur, after reduction has taken place, from overlooked wound of protruded mass (Case five of table). (6) That even in the absence of visceral lesions sufficient fluid, serous or bloody, from parietal injury, may gravitate to the dependent portions of the cavity, and, in the event of infection, overtax the normal limited ability of the peritoneum to dispose of such products, a power "greatly influenced by the general condition of the individual and diminished or suspended by injury or disease, affording at best only an infinitesimal influence in lessening the death-rate from this class of injury." (7) That septic infection is much easier to prevent than to cure. (8) That while transient symptoms between the second and fifth days may be regarded as evidences of adhesive reparation with perhaps a successful attempt at the disposal of infective material, more marked and progressive symptoms indicate the presence of more serious lesions which must be combated with free purgation or secondary irrigation and drainage. (9) That such exploration at the present day carries with it the minimum of risk and offers the most intelligent and safe method of dealing with injuries, the extent and character of which are always uncertain, and which necessarily imply serious and often fatal possibilities. (10) That with perforating wounds, when left to Nature, recovery is the exception to the rule, the published percentage of fatalities being far below the actual. (New York Medical Journal, December 17, 1892, p. 675.)

RECTUM, CANCER OF THE.—Methods of operation and their results.

Schmidt, in the *Berliner klinische Wochenschrift*, 1892, No. 24, reports fifty-nine cases of operation for carcinoma of the rectum from Czerny's clinic. The methods of operation proposed can be divided into (1) those that attempt to remove the rectum from the perineum, and (2) the sacral method by osteo-plastic resection of the sacrum, with the object of removing the carcinomatous growth only when possible. Of the fifty-nine cases, twenty-five have been reported as having died. From six cases information could not be obtained; twenty-eight are living, of which ten were subjected to the perineal operation, and in eighteen the sacral method was employed; twelve patients have passed the critical period of two years. The greatest prolongation of life after operation was five and three-quarters years. Four of these twelve cases have visible recurrences, one of which is operable. The reports of the patients have been satisfactory. Weight and nutrition have increased, and most of them follow

their occupation as before. The question of continence is one of great importance to the patient. Absolute continence was secured in the sacral operation only, in cases in which it was possible to perform a circular suture of the canal. Very nearly perfect control was obtained in cases in which the split sphincter was united to the proximal end of the gut. In the perineal operations, relative continence was obtained. The author looks for a diminished mortality with improvement in the technique of the operation. (The American Journal of the Medical Sciences, November, 1892, p. 609.)

SUBDIAPHRAGMATIC ABSCESS IN CONNECTION WITH PERFORATING ULCER OF THE STOMACH.

At the Clinical Society, on January 13, 1893, Drs. F. G. Penrose and Lee Dickinson related cases of Abscess beneath the Diaphragm in connection with Perforating Gastric Ulcer. They based their paper upon the notes of ten cases, in which perforation of the stomach had resulted in the formation of an abscess confined, within tolerably constant limits, to the upper part of the abdominal cavity. After referring briefly to the literature of the subject they showed that the ordinary physical signs of pneumothorax might be present, but not in the position usual to that condition. Most of the cases gave hyper-resonance on percussion, amphoric breathing, and the bell-note over an area more or less confined to the epigastrium and the left hypochondrium. There was generally evidence of compression, either with or without pleural effusion, at the base of the left lung behind. The heart's apex was generally to a slight extent displaced. Sounds indistinguishable from pericardial or pleuritic friction, or both, were at times detected in some of the cases. The diagnosis of the cases was usually not difficult, but certain thoracic complications, such as empyema, pyo-pneumothorax or pulmonary abscess, were liable to arise and might be very misleading. The limits of the cavity were found to be fairly constant and as follows:—Above the arch of the diaphragm; on the right, the falciform ligament of the liver; in front, the anterior abdominal wall; behind and below, the left lobe, being adherent to the anterior abdominal wall and thus closing the abscess cavity at its anterior inferior angle: on the left, the cardiac end of the stomach, the spleen and the diaphragm, there being a deep pocket of the abscess extending backwards between these organs. They stated that they had brought the cases before the Society in the hope that the surgical treatment would be discussed. They asked for information on the two following points especially:—(*a*) How the deep pocket of the abscess in

the direction of the spleen should be drained ; and (*b*) whether it would be feasible to close the hole in the stomach wall at the same time that the operation for the relief of the abscess was undertaken. (The Lancet, January 21, 1893, p. 145.)

TUBERCULOUS PERITONITIS IN INFANCY.—Laparotomy for.

Aldibert (*Revue mensuelle des Maladies de l'Enfance*, 1892, p. 249), in a critical review of the literature of this subject, has collected forty-six cases of peritoneal tuberculosis in children treated by operation, with a result of four deaths and forty-two cures, of which nine persisted after one year, and two after two years. None of the deaths were immediately due to the operation itself, an improvement always following the laparotomy even in those cases ultimately fatal, so that the mortality of operation was actually *nil*. If account is taken only of those cases proven to be tubercular by histological and bacteriological research, there are eighteen cases with eighteen cures, two of which persist after one year, three after one year and a half, and one after two years ; in other words, one-third of the cures are reasonably assured. These statistics demonstrate the curability of tubercular peritonitis by laparotomy, and this has been corrobated by post-mortem examinations, or by the evidence obtained in subsequent abdominal operations upon subjects of tubercular peritonitis treated by this method. In a case reported by Le Bec, for example, where death occurred a year and a half afterward, the peritoneum was found absolutely clean and free from granulations. The method of operation varies according to the nature of the case. In free and generalised ascites the incision should be median and sub-umbilical. The value of lavage is not yet definitely settled. According to the statistics of Koenig and those of the author, the cures were almost as numerous when no lavage was employed as when this was done. It is, however, certain that lavage serves a definite purpose in bringing away pseudo-mebranous débris and arresting capillary hemorrhage. Sterilized boiled water saturated with boric acid at a temperature of 100° F. may be employed for this flushing. Other solutions have been used by different operators, *e.g.*, salicyclic acid (3 per cent.), thymol, phenic acid (1 per cent.), and tincture of iodine (1 : 1000), without any toxic effects. Drainage is deprecated as exposing to the danger of interminable fistulas. The conditions which offer little hope of benefit by operation are : 1. Generalised miliary tuberculosis, although when an acute eruption of miliary tubercle is confined to the peritoneum there is no positive contra-indication ; and (2) Tuberculosis of the intestine. Co-existing pulmonary disease is only

to be considered a contra-indication when it is far advanced. Albuminuria, unless accompanied by other signs of tubercular nephritis, is not a contra-indication; and, indeed, in the two cases in which it was noted, it disappeared soon after the operation. (The American Journal of the Medical Sciences, February, 1893, p. 229.)

TYPHLOTOMY IN COMPLETE OBSTRUCTION OF THE LARGE INTESTINE.

I would advise that, first, in all cases of obstruction in the large intestine, when injections have failed, and where neither the exact site nor the cause can be diagnosed, that the abdomen should be opened on the left side over the sigmoid flexure, but if this part of the bowel prove to be below the obstruction the wound should be closed, and the cæcum exposed on the opposite side. Secondly, I advise that a small opening should be made in the distended cæcum after stitching it to the parietal peritoneum, and that this opening may be ultimately enlarged or permanently closed according to the nature of the obstruction as shown by the subsequent progress of the case. (Mr. Harrison Cripps, British Medical Journal, February 25, 1893, p. 397.)

[See also article by Mr. Harrison Cripps "On the Treatment of Complete Obstruction of the Large Intestine by Temporary Typhlotomy," at p. 330 of this volume of the *Retrospect.*]

AFFECTIONS OF URINARY AND GENERATIVE SYSTEMS.

BRIGHT'S DISEASE.—Diet and Treatment in.

M. Semmola, at a meeting of the Academy of Medicine, records his experience of forty-two years, as follows: (1) The quantity of albumin eliminated during twenty-four hours is considerably modified by diet. (2) Under the influence of an exclusively meat diet the quantity of albumin eliminated during twenty-four hours increases considerably, even to twofold. (3) Under a vegetable and starchy diet the albuminuria diminishes considerably, even to a third part of that formerly excreted under a mixed diet. He states that, whether from the action of toxines or from failure of elimination of albuminoids, or from both of these causes combined, as a result of his experience he regards milk as the typical food and at the same time a remedy for the albuminuria of Bright's disease.—*Bulletin de l' Académie de Médecine*, 1892, No. 37, p. 455. (The American Journal of the Medical Sciences, December, 1892, p. 712.)

CHRONIC ALBUMINURIA.—Prognosis in.

At the Medical Society on February 20, 1893, Dr. Ralfe observed that the clinical significance of albuminuria as a symptom had undoubtedly diminished during the last twenty years. Since, however, the practice was established of systematically examining the urine for albumen in all cases that came under observation, as well as in a presumably healthy class that presented themselves for "life assurance" and the public services, a numerous and well-defined group of cases had been determined which for convenience might be designated as "functional," and which perhaps constituted from one-third to one-half, according to the character of the practice, all the cases of albuminuria that came under notice; besides which, with regard to the albuminuria associated with actual disease of the kidneys, the earlier recognition of the symptoms owing to the systematic examination of the urine, which informed us of the mischief in the primary stage of its inception, before the structure of the kidney was irreparably damaged, and permitted by improved hygienic and dietetic measures checking its advance, and possibly in acute forms its recurrence, had made the prognosis of all albuminuria not only more hopeful taken as a symptom generally; but even in the graver cases, when associated with renal disease, had rendered them less immediately fatal than had till recently been supposed. But in these cases (organic renal disease) there were so many clinical varieties depending on etiological conditions—such as the constitution of the patient, heredity, specific conditions such as gout, syphilis, struma, malaria, &c., either acquired or inherited, specific poisons, such as scarlet fever, diphtheria, lead-poisoning, and the like, which had to be taken into consideration in coming to a conclusion as to the course any given case might run—that nearly every patient presenting himself showed some variation worthy of notice as affecting either the predisposing or exciting causes that accelerated or retarded the progress of the disease. The most familiar varieties of chronic albuminuria which came under notice were those which eventuated in the contracted granular kidney associated with cardio-vascular changes more or less marked. In the red variety, owing to the insidious nature of its onset, it was often not till late that the true character of the disease was recognised; and this was usually detected by the sudden development of some symptom other than albuminuria, of grave prognostic import, such as albuminuric retinitis, dyspnœa, hemorrhages from mucous surfaces, and paralyses, after the establishment of which the hopes of prolonging life were seriously curtailed. When, however, by good fortune one met with a case in quite an early stage, one might hope by proper dietetic and hygienic measures to retard its progress and render

the prognosis brighter. Dr. Ralfe quoted the case of a gentleman who on examination, in 1878, was found to have his urine normal, his pulse soft and heart not enlarged, who was found in 1882 to have developed albuminuria, with enlargement of the left ventricle and tense pulse, and who during the last eleven years had not apparently become worse, owing in great measure to his care in dieting and general hygienic precautions. With regard to the nephritis of gouty patients, Dr. Ralfe was of opinion that the intensity and continuance of the inflammation was influenced by the severity of the gouty manifestations, and when these could be controlled the renal affection often ran a very chronic course. He mentioned a patient with gouty nephritis, who had consulted the late Dr. Murchison in 1874 for albuminuria with distinct nephritis, who was still living, a duration of nineteen years. Speaking of such symptoms as uræmia and dropsy, Dr. Ralfe remarked that these symptoms in gouty nephritis had not the same grave import as in other varieties of chronic albuminuria and were often relieved by an outbreak of acute gout. In the nephritis occurring in patients who had suffered from syphilis, malaria and plumbism the prognosis was far from being favourable. In these cases vascular degeneration usually occurred at an early period, and after the development of symptoms depending on this the patients rarely survived more than eighteen months to two years. Other forms of chronic albuminuria were passed in review, chiefly a form of chronic hemorrhagic nephritis, and also a paroxysmal form, which Dr. Ralfe suggested might be a true gouty inflammation of the kidney. He also drew attention to a form of chronic nephritis occurring in middle-aged and obese persons, which was probably caused by venous plethora. In some of these cases a mild form of diabetes often existed at the same time. The albuminuria so often found in morphia *habitués* was probably caused in this way, the drug causing partial paresis of the renal veins and their branches. He likewise insisted on the importance of not disregarding intermittent appearances of albumen in middle-aged persons, as they were often a prelude to more serious symptoms. In conclusion, Dr. Ralfe detailed some observations and experiments he had made regarding the effect of milk diet on the various forms of albuminuria, with the result that an absolute or nearly absolute milk diet was most beneficial in acute or subacute nephritis, especially for the relief of dropsy. It was badly borne in the more advanced cases, especially if there were vascular degeneration or uræmic symptoms; in one instance uræmic convulsions followed every attempt to enforce the diet.

Dr. Stephen Mackenzie referred to the great difference in the prognostic significance of albuminuria between the present day and Bright's time. Then anyone whose urine was albuminous

was consigned to a speedy grave, whereas now it was known that many such patients might live for years and discharge active professional and business duties. It was the subjects of the gouty variety of granular kidney who lived long, especially if they adopted a carefully regulated diet. The fact that patients with chronic granular kidney were subject to hæmaturia was not well known; attacks of a hemorrhagic character might occur intermittently over a considerable period. In passive congestion of the kidney with congestion of the chylo-poietic viscera there might be albuminuria without arterial tension and without cardiac hypertrophy. Patients with lardaceous disease did not commonly suffer from cardio-vascular change, and albuminuric retinitis in them was almost unknown. It was necessary in treatment to combat the anæmic tendency so commonly manifested. In cases without anæmia the prognosis was better. (The Lancet, February 25, 1893, p. 415.)

DIABETES MELLITUS.—Treatment by Feeding on Raw Pancreas.

Dr. Hale White has made a trial of this method in two cases, and reached the following conclusion. The general conclusions at which we may arrive, if we may judge from two cases only, are that it is very doubtful whether feeding on fresh pancreas or the subcutaneous injection of liquor pancreaticus is of any benefit in diabetes mellitus. Neither appear to have any influence on the quantity of the urine, its specific gravity, or the urea; perhaps they decrease the amount of sugar passed and very slightly increase the weight and feeling of strength. Patients like raw pancreas, but one great disadvantage is that it may cause severe erythema with fever and a slight sore throat. (British Medical Journal, March 4, 1893, p. 452.)

ECLAMPSIA.—The Condition of the Kidneys in.

In the *Zeitschrift für Geburtshülfe und Gynäkologie*, Band xxiii., Heft 1, Prutz describes in detail the condition of the kidneys in twenty-two cases of fatal eclampsia. While acute and chronic processes were present in many, in many others there was no pathological condition in the kidneys sufficient to account for the eclampsia. In many cases congestion and transudation of serum seemed the condition present. Microörganisms were absent. There was no relationship between the severity of the eclampsia and the extension and severity of the pathological lesions in the kidneys: many of the severest cases of eclampsia showed but slight alterations in the kidneys. In the kidneys of infants born during eclampsia were found an absence of inflammation; epithelia intact; a great number of hyaline casts and enormously

distended veins; infarcts of uric acid were also present. The lesions seemed to be those of intense congestion and transudation of serum. (The American Journal of the Medical Sciences, August, 1892, p. 239.)

NEPHRECTOMY.—Results.

The simple figures of my cases show the following results:—(*a*) In five cases of nephrectomy for solid tumours there were two deaths; (*b*) in six cases for hydronephrosis there was no death from the operation; (*c*) in seven cases for calculous affections two deaths occurred; (*d*) in five cases for tuberculous disease there were three deaths. Thus we have seven deaths out of twenty-three cases, or a mortality of 30·4 per cent. This is a high rate, but it compares very favourably with all previously published results of nephrectomy. It is, too, only the same rate as Greig Smith gives as the mortality of nephrotomy. This author, in the third edition, page 558, of his admirable work on *Abdominal Surgery*, quoting Gross's tables, gives the death-rate of nephrectomy for all forms of suppurative lesions at nearly 50 per cent. He there also says that for malignant tumours it is 70 per cent.; but for strumous kidney he does not put it higher than 36 per cent. In Newman's list of 268 operations, the total mortality is given as 35·2 per cent., and this includes twenty-seven operations for traumatic lesions with eight deaths, and the two classes most favourable for success, namely, 46 for hydronephrosis with eighteen deaths, and thirty for movable kidney with nine deaths. In the group of malignant tumours the death-rate in my cases is 40 per cent. as against 70 per cent. in Newman's table. As against his 39 per cent. for hydronephrosis I have no death from the operation, though one of my patients, after going well through the operation, died some weeks afterwards from uræmic convulsions owing to advanced hydronephrosis of the other kidney. Again Newman's tables show twenty-two deaths in sixty-one operations for calculous disease; this is at the rate of 36·3 per cent. I lost two cases out of seven of the same disease, a mortality of 28·5 per cent. My worse results were in group *d*, in which I lost three out of five patients nephrectomised for tuberculous disease, a mortality of 60 per cent., as against twelve deaths out of thirty-three operations, or 36·3 per cent. in Newman's list. (Mr. Henry Morris, British Medical Journal, January 7, 1893, p. 2.)

SUGAR IN THE URINE.—The Phenyl-Hydrazine Test for.

In the course of a paper read at a meeting of the Royal Medical and Chirurgical Society on the disputed question as to whether sugar is ever present in normal human urine, Mr. G. Stillingfleet

Johnson, F.C.S., gave a demonstration of the above test for sugar, by which its presence in quantities of much less than a tenth of a grain per ounce can be shown with certainty. The process is as follows: The urine is completely precipitated with lead acetate and filtered. The filtrate is rendered alkaline with potash, and a solution of phenyl-hydrazine is added. The mixture is well shaken and boiled. An orange colour is developed, which is followed by an orange precipitate, when excess of acetic acid is added if sugar be present. The clinical value of the test is increased by its not being affected by excess of urates of kreatinin, which occasionally lead to error in inexperienced hands when testing human urine for sugar with either cupric salts or picric acid in boiling alkaline solutions. Dr. Curnow stated that he had used the phenyl-hydrazine test with complete satisfaction for the past two or three months. The test was discovered by Fischer and made better known by C. Schwartz. It precipitates aldehydes and ketones, glucose belonging to the former class. It is almost impossible to imagine that any other aldehyde or any ketone but glucose can become a constituent of normal urine, and hence the peculiar value of the reagent. There are other carbo-hydrates if not glucose among the extractives in normal human urine, and the question as to whether glucose is amongst them in a very minute proportion seems to rest on the relative value of the benzoyl-chloride test advocated by Dr. Hunter and the phenyl-hydrazine test used by Mr. Stillingfleet Johnson. If the entire reducing action of the normal urine can be accounted for by the uric acid and kreatinin which it contains, as is so positively stated by Mr. Johnson, it is clear that there is no room for believing that glucose or any other carbo-hydrate with a "reducing" action can be present in normal urine. Phenyl-hydrazine is a derivative from phenol. (The Lancet, February 18, 1893, p. 374.)

GENERAL SURGERY, AND AFFECTIONS OF THE BONES, JOINTS, &c.

BURNS.

Von Bardeleben (*Deutsche Med. Woch.*, No. 23) recommends for burns of moderate severity the use of a powder of equal parts of subnitrate of bismuth and powdered starch. The burns are thoroughly cleansed, then washed with a three per cent. carbolic, or three per cent. salicylic acid solution. The blisters that are present are then removed under antiseptic precautions and the above powder then thoroughly applied. This is covered with layers of cotton, which are removed as they become saturated

with the secretions, except the one next the wound. This dressing may remain undisturbed for one or two weeks or even a month. In most cases pain disappears a few hours after applying the bismuth. In burns of the face the writer uses the powder with no other dressing. (Boston Medical and Surgical Journal, September 23, 1892, p. 323.)

CLUB-FOOT.—Its Ætiology.

At the American Orthopædic Association in September, 1892, Dr. Samuel Ketch, of New York, read a paper on this subject in which he reviewed the five prominent theories regarding the causation of club-foot, viz.:—(1) The theory that pathological changes occurred *in utero*; (2) the theory of heredity; (3) the theory of mechanical forces acting on the fœtus; (4) the theory of arrested development; and (5) the theory of non-rotation or of retarded rotation. In one hundred and ninety-six cases analysed by him, only ten gave unmistakable evidence of hereditary, and, while maternal impressions were often assigned as the cause, careful inquiry not infrequently revealed the fact that the "impression" had been received too late in gestation to affect the development of the part in question. The third theory had had the largest number of adherents, but the objections were that in the early months of pregnancy, when there was an abundance of amniotic fluid in proportion to the size of the fœtus, and hence when there could be no injurious pressure, these deformities were already present; that other parts subjected to the same pressure were not deformed at birth; and that in most cases of congenital club-foot there was nothing unusual about the quantity of amniotic fluid. The author had collected six hundred and seventeen cases of club-foot, four hundred and twenty-one of which were of the acquired type. Leaving these out of consideration, there remained one hundred and ninety-six cases, of which one hundred and twenty-six had occurred in males and seventy in females. There were one hundred and fifty cases of equino-varus, three of equino-valgus, fourteen of pure varus, two of pure valgus, four of equinus, and sixteen of calcaneus. In three the variety was not mentioned. (New York Medical Journal, October 15, 1892, p. 442.)

Club-foot.—Treatment.

At the American Orthopædic Association, in September, 1892, Dr. Lewis A. Sayre said that he had long been of the opinion that the treatment of congenital club-foot should be begun immediately after the birth of the child, and if the general practitioner could be impressed with the simplicity of the treatment required at this early period, there would not be so many neglected cases. The best of all instruments for this early

treatment was the hand, whether the condition was one of varus, valgus, equinus, or calcaneus. On the first attempt to gently force the foot toward the normal position it would be found that the circulation became impaired, but if this manipulation was made gently and intermittently, it would be found after an hour that the foot could be made to go almost into the normal position without seriously impeding the circulation. When this had been accomplished, the foot was to be held in this position by any convenient retentive apparatus, and the manipulation repeated day after day. The mother or nurse could easily be taught how to carry out the necessary manipulations. After a while artificial aid might be necessary, and then a piece of moistened sole-leather could easily be moulded like a stocking to the foot, and made to retain any desired shape. The leather splint could be remoulded from time to time to keep pace with the improvement effected. When the point was reached at which the child could place the foot flat on the ground, walking would complete the cure. Where the muscles were paralysed, he had been accustomed to employ elastic traction. If, when point pressure was made on a resisting part, it produced a reflex spasm, this was an indication that the part had been stretched to its fullest extent; hence cutting was alone indicated, and, as long as this indication existed, it was a matter of indifference at what age the operation was performed. Having divided the resisting part and slightly over-corrected it, he applied a retentive apparatus for about two weeks or until firm union had taken place. Almost any retentive apparatus combined with proper exercises was now all that was necessary. In aggravated cases, where the bones had become permanently altered, it was necessary to do a cutting operation, and he advised following Phelps's method of cutting anything that resisted—if necessary, even removing portions of the bony structures, and then forcibly and fully correcting the deformity. He saw no occasion for wrenching the parts after the manner described by Dr. Ridlon without using an anæsthetic, for this was unnecessarily cruel; the operator's eyes ought to be a sufficient guide. If the treatment just outlined was carried out fully, he did not believe there would be any relapses. (New York Medical Journal, October 15, 1892, p. 444.)

FLAT-FOOT.—Operative Treatment.

Of operative measures but three have met with much favour; first, that advised by Ogston, which aims at forming an anchylosis between the astragalus and scaphoid bones. This is obtained by removing their articular surfaces, and fastening the bones together by means of ivory pegs in a correct position. Second, a less severe operation has been advised by Mr. Stokes, who

proceeds as follows :—Having rendered the parts to be operated on aseptic, he makes an incision an inch and a half in length along the inner edge of the foot, the centre of the incision being at the prominence formed by the head of the astragalus. Near the centre of this incision, at right angles to it and a little below the situation of Chopart's joint, is made a second incision, and the two triangular flaps of skin dissected back for about half an inch. A wedge-shaped piece of bone from the enlarged head and neck of the astragalus is removed with an osteotome, and the foot is then put up in plaster in the corrected position. Both these operations are open to the objection of leaving a stiffened joint in the centre of the foot. An operation which is rapidly gaining favour both in Germany and in this country is that advised by Von Trendelenburg, which is confidently spoken of as the operation of the future. It is nothing more than the artificial production of bow leg. The tibia and fibula are respectively chiselled through subcutaneously a short distance above the ankle-joint. The ankle is then taken under the arm and the foot forcibly placed in the normal position. The ankle and foot are then put up in a plaster bandage, in which they remain for from ten to twelve days, after which time the bandage may be taken off and the position still further corrected if it is found necessary. No over-correction is necessary in this form of operation. After four or five weeks the patient can be allowed to walk about with some form of light apparatus. Trendelenburg claims for this operation that it not only returns the foot to its normal position, but restores its arch as well. (Boston Medical and Surgical Journal, November 10, 1892, p. 450.)

[See also article by Dr. John Dane "On the Treatment of Flat-foot," at p. 301 of this volume of the *Retrospect.*]

PAIN IN THE SOLE OF THE FOOT.—"Morton's Affection."

The affection as I have seen it consists in a tenderness of the sole, usually most marked opposite the space between the distal ends of the third and fourth metacarpal bones. In walking there are often referred sensations along the corresponding toes. If walking is persisted in, soreness often ensues, which finally may give rise to dull pain throughout the whole leg. It is worse in wet and cold weather. The treatment consists in protecting the tender point, either by putting a thin but stiff leather inside-sole into a broad shoe, with a hole cut of appropriate size and shape, or else by making a depression at this point in the sole of the shoe. This can be done by having the last made with a projection on it at the proper place. I have

found it very important to make the hole in the inner sole of oblong shape, the long axis (which I think should be an inch or an inch and a half in length) running parallel with the metatarsal bone. In my own case the opening begins within about a quarter of an inch of the outer edge of the sole, and then slants forward and inward. The space between the heads of the third and fourth metacarpal bones lies opposite the opening. I find the proper place to make the opening by putting aniline ink over the tenderest spot on the sole of the foot, and then letting the patient put his naked foot into the shoe containing the inner-sole, which has been moistened with water so as to absorb the stain. Of course, there is some smearing, but the most anterior point is obtained in this way. After a time, the leather of the boot-sole is pressed up into the hole in the inner-sole, and then it may be necessary to renew the boot or shave off the elevation. (Ibid., September 1, 1892, p. 214.)

SPONGES, INSTRUMENTS, &c.—How to Purify them, &c.

I have long been convinced by experience, that we need not fear tubercle bacilli in our sponges if we keep them for a considerable time in 1 in 20 carbolic lotion. The way in which our sponges are treated is this: they are washed well with soap and water and afterwards with soda; then thoroughly washed again with water; and finally, after drying, put to steep in 1 in 20 carbolic solution till they are again required for use. For my own part, I purify my sponges for private operations in a somewhat rough-and-ready way. I put the sponges after an operation into a tank of water and let them putrefy there. The fibrin, which clings among the pores of the sponges, becomes liquefied by putrefaction. They can then be washed thoroughly clean of their fibrin, and the washing is continued until they no longer give a red colour to water. They are then put into 1 in 20 carbolic solution and kept there. In my Edinburgh practice I used to proceed in a bolder way. Taking the sponges out of the putrid tank I washed them in water; and sometimes if I was in a hurry, even before the water which came from them was completely freed from red colour, I dipped them into the 1 in 20 carbolic solution and took them at once to my operations. I have before now applied a sponge so treated immediately to a wound for the purpose of exercising elastic pressure and absorbing blood and serum from it, and then put on my external antiseptic dressing over it without any bad result. These facts taken together will, I think, be enough to show that it is not necessary, as is sometimes done, to discard these most valuable articles and substitute for them sterilised cotton wool or tissue

of one kind or another—incomparably inferior to sponges for the purpose of absorbing blood. This same 1 in 20 carbolic solution is what we use for purifying our instruments, our hands and the skin of the patient. For the instruments, it is very much more convenient to be able to purify them by a solution like this than to boil them, as is sometimes the fashion at present. It is all very well in a large hospital where you have conveniences for the purpose of heating to any temperature you please the instrument or whatever it is you wish to sterilise, but for private practice it is a most inconvenient thing to have to boil your instruments; and even when you have boiled them and brought them sterilised to your operation, it often happens that an instrument falls upon the floor or comes in contact with some source of contamination. You cannot boil it again before going on with the operation, but the bath of carbolic lotion at once puts it right. As to the length of time for which the instruments should be kept in the solution, a good deal depends upon the care with which you wash your instruments before putting them away. Any which have teeth, such as forceps, require special attention. They should always be brushed with a nail-brush before they are dried, so that there may be no crusts of dried blood upon them which the carbolic lotion might require a considerable time to penetrate. If this has been done, a very short period is sufficient for sterilising. In private practice I put the instruments into 1 in 20 carbolic lotion just before the patient is brought into the room. They continue to be kept in it during the administration of the anæsthetic and during our other preparations, and this is quite adequate for the purpose. It is of great importance that we should not make things unnecessarily complicated. So also with the purifying of the skin of the patient. It is not needful to apply an antiseptic lotion for hours together, as is sometimes done; a few minutes' action of the 1 in 20 carbolic solution is really sufficient. For purifying the eyelids before ophthalmic operations the carbolic lotion would cause serious irritation. In this special case a weak solution of corrosive sublimate, applied in compresses, is probably the best. It must, however, be continued for a lengthened period. (Sir Joseph Lister, Bart., The Lancet, January 28, 1893, p. 180.)

TALIPES EQUINO-VARUS.—Radical Treatment of Severe Cases.

At the Royal Medical and Chirurgical Society, on November 22, 1892, Mr. Edmund Owen said that the orthodox treatment of severe club-foot by subcutaneous division of the tibial tendons and of the plantar fascia, and subsequently of the tendon of

Achilles, left much to be desired. The tendon of Achilles should in all cases of congenital talipes be the first to be divided. In not a few cases of slight equino-varus its subcutaneous section sufficed in the way of actual operation, and in severe cases the amount of the inversion of the sole could be correctly estimated only after its section. Though subcutaneous surgery in general had played a useful part, it was more or less of an anachronism. It had been entirely superseded in the operative treatment of reducible inguinal hernia, and greatly to the advantage of ruptured persons; but subcutaneous operations were still generally performed for the cure of congenital club-foot. Operating thus, comparatively in anatomical darkness, the surgeon could not know for certain what structures he was dividing, nor could he be sure of severing certain important bands, deeply placed in the sole perhaps, which chiefly prevented his obtaining the perfect and easy rectification of the foot. Moreover, in a severe case of congenital club-foot, the skin itself offered a most serious impediment to a correction of the deformity. The operation recommended for adoption in severe cases of club-foot was that introduced by Dr. A. M. Phelps, of New York. It consisted in dividing every resisting structure which was encountered by a free vertical incision passing from the dorsum of the foot into the depths of the sole over the head of the astragalus, the tendon of Achilles having been first cut. The improved position of the foot was thus obtained by lengthening the inner border of the foot, rather than by shortening the external border, as was usually accomplished in tarsectomy. By this incision the astragalo-scaphoid joint was separated and the space intervening between the bones was duly filled up with granulation tissue, which was eventually converted into a strong and trustworthy cicatricial band between the anterior and posterior segments of the foot. The treatment of the foot subsequent to the operation was simple and satisfactory, and relapse was far less likely to occur than after the old method of operating. Mr. Owen had for several years been carrying out this open method of treatment, and in a considerable number of severe cases of congenital talipes; he expressed himself as highly pleased with it. Dr. Phelps informed him that he had now carried it out in 200 cases with no fatal result, and with but a very small proportion of relapses. (British Medical Journal, November 28, 1892, p. 1170.)

TENOTOMY BY THE OLD METHOD.

In judging between the subcutaneous and the open methods in tenotomy, and in appraising their comparative value, a decision can be made to depend upon the interpretations of two surgical axioms. The first of these is to the effect that the operation

incision should never be larger that the efficient performance of the operation requires, and the second insists that the division, and, if need be, the subsequent separation of the integuments, should be sufficiently free to enable the parts concerned to be well exposed, and to be dealt with with exactness. Here, then, are two extremes. On the one hand, there may be surgeons who will boast that they can ligature the common carotid, or extract the ovaries, through an inch incision. Such feats are possible, but they belong rather to legerdemain than to operative surgery; they are curious, but at the same time are both foolish and foolhardy. On the other hand, the worshippers of the free incision will maintain that the size of the skin-wound is of no moment at the present day, and that a free and ready exposure of the operation district is worth any sacrifice. A surgeon so minded may ligature the carotid by a process comparable to that by which the vessel is exposed in the dissecting room, and his abdominal incision may be founded upon the liberal lines observed in the making of post-mortem examinations. So far as the present object is concerned the true course lies between these two extremes. If a tendon can be easily and certainly divided through a small skin puncture, then there can be no reason for employing a larger incision. In dividing the tendo Achillis I still employ the subcutaneous method, not because a subcutaneous incision is safer, but because the tendon can be quite as well severed through a small incision as through a large. On the other hand, if the position of the tendon or band be such that its subcutaneous division is attended with the very least uncertainty, then I freely expose it by turning back a suitable flap of skin. By such a procedure the tendon is brought well into view, its sheath can be precisely opened, and its substance precisely divided. In dealing with a severe case of wry-neck, it appears to me that the subcutaneous method is entirely out of place, and I have observed the plan of exposing the part through a flap, and of then cutting such contracted tissues as need division (and they are not represented solely by the sterno-mastoid tendon) without the least element of speculation or uncertainty. For some years past I have returned to the older method of tenotomy in the majority of the cases requiring that operation in its widest sense, and have employed the improved or subcutaneous incision in but a comparatively few cases. (Mr. Treves, American Journal of Medical Sciences, January 1893, p. 17.)

WRY-NECK AND HÆMATOMA OF THE STERNO-MASTOID.

At the Royal Medical and Chirurgical Society, on January 24, 1893, Mr. D'Arcy Power read a paper on the Relationship between Wry-neck and Congenital Hæmatoma of the Sterno-mastoid. He

desired to bring into renewed prominence the relationship existing between wry-neck and congenital hæmatoma of the sterno-mastoid. For this purpose he recorded the cases of hæmatoma which had come under his observation during the last five years at the Victoria Hospital for Children. Attention was directed to the insufficient observations which had hitherto been made in England on this affection, and to the slightly better results obtained in France and Germany. The vague and misleading terms "tumour" and "chronic induration" of the sterno-mastoid should be replaced by the more scientific term "hæmatoma." Reference was made to the cases published by Mr. Smith, Mr. Henry Arnott, Dr. Frederick Taylor, Mr. R. W. Parker, and Mr. Clutton. In Mr. Clutton's cases alone had the relationship of the affection to wry-neck been brought out in detail, though other writers had alluded to it by implication. Allusion was also made to the excellent work done by Professor Witzel in Bonn, and by Dr. H. R. Spencer in this country. Details of cases were given, and certain conclusions drawn.

Dr. H. R. Spencer agreed with Mr. Power's conclusions. There were three main views as to the cause of congenital wry-neck (1) That it occurred *in utero*, (2) that it was due to syphilis, (3) that it was due to hæmatoma of the sterno-mastoid muscle. In support of the first, that which supposed it to occur *in utero* without injury, and which had only been lightly touched upon by Mr. Power, there were only two cases, published by Meinhard, Schmidt and Heusinger, and in these the evidence was far from conclusive. Guyon, out of 23,000 new-born children observed at the Maternité in Paris, had not seen a single case of this deformity at birth. The idea that these masses were due to syphilis could no longer be retained. The condition generally occurred in cases of breech presentation, and rather more frequently in the right than in the left muscle. Out of 100 necropsies on macerated fœtuses, most of which were syphilitic, Dr. Spencer had not once found this condition, whereas out of some 200 examinations of fresh fœtuses, the majority of these not being syphilitic, he had found hæmatoma of the muscle in no fewer than fifteen subjects. These facts were already published in the *Journal of Pathology*, 1892; moreover, the microscopical appearances of these tumours were not those of syphilis, but were undoubtedly due to extravasation of blood. With reference to Mr. Parker's supposition that it might be due to some abnormal or strained position of the head *in utero*, he thought that this was probably not correct, in that the condition was produced most frequently in those cases—namely, breech presentations—in which the head was most movable. He mentioned a case of Cæsarean section where the head of the fœtus had been fixed during the last three months of gestation by

fibroids of the uterine wall, and in the child there was neither a sterno-mastoid tumour nor torticollis. Witzel, in the paper alluded to by Mr. Power, mentioned six cases of hæmatoma of the sterno-mastoid muscle in which he had observed torticollis to develop. Dr. Spencer called attention to the fact that these tumours were much commoner than was generally supposed. During the last two years he had seen eight cases, six occurring in breech presentations and two in forceps deliveries. All these had been absorbed without wry-neck ensuing, though in one there was slight lateral deviation. The rupture differed from that which occurred in adults, as individual fibres of the muscle only, and not the whole muscle, were ruptured. The tumour increased in size during the first few weeks after birth; this was due most probably to the rapid formation of fibrous tissue following the hemorrhage, and this would explain the appearances in Mr. Power's specimens; and in support of it Dr. Spencer instanced the fact that in some cases of forceps delivery he had noticed that a bruise of the cheek, if watched for three or four weeks, sometimes continued to enlarge and to get harder, though finally it disappeared. (British Medical Journal, January 28, 1893, p. 175.)

AFFECTIONS OF THE SKIN, &c.

ALOPECIA.

Dr. H. Paschkis divides this disease into two classes for the purpose of treatment. When this condition is due to seborrhœa he recommends washing the head with alkaline soaps, specifying a liquid soap with the addition of one per cent. of carbonate of potash. For permanent removal of the oily matters, coal-tar benzine with twice its weight of absolute alcohol, but this must be used only by daylight. Occasionally an alcoholic solution of resorcin, 1 : 30, with a small amount of castor oil, is advisable, as well as the naphthol soaps now to be found at the apothecaries. Of late years he has used 10 to 20 per cent. of ichthyol in lanolin; this, however, must be preceded by an energetic washing with soap. Sometimes the daily use of alcoholic preparations of tannin and quinine are useful; such preparations are often found in the shops. Although the treatment is likely to be prolonged, yet the prognosis is generally favourable. The cases where there are scale-formation, pityriasis, or scanty secretion of the sebaceous follicles, are more difficult to treat. Here the washing with soaps has no place, but oils and pomades are required. Here, also, are used stimulating remedies of four to six per cent. alcoholic solutions of tincture of cantharides, oil of savine, tincture of capsicum, or tincture of hellebore, either daily or

three times weekly. If this condition is accompanied with hyperidrosis, then local faradisation and reconstructive remedies, as iron or arsenic, are required. The cases of trichorrhexis nodosa are entirely unsatisfactory from the standpoint of therapeutics, although sometimes pilocarpine, both locally and internally, may be of service. Alopecia areata apparently is spontaneously cured, quite as often as by remedies, although usually disinfectants and irritants are prescribed.—*Centralblatt für die gesammte Therapie*, 1892, No. 6, S. 321. (The American Journal of the Medical Sciences, October, 1893, p. 469.)

ALOPECIA AREATA.—Treatment of.

The intractability of any complaint may generally be pretty fairly measured by the multitude of so-called cures suggested. M. P. Raymond thus formulates his for alopecia areata. It is based on two considerations : —(1) To oppose the extension of existing patches and the formation of fresh ones. (2) To exercise a parasiticide action on the patches, but above all a strong revulsion, a continued cutaneous stimulation which will awaken the vitality of the hair papilla. From half-an-inch to an inch round each patch must be shaved, and the hair thereafter kept short. The head is to be washed twice a week with an antiseptic soap ; he uses commonly carbolic soap. Every morning the following lotion is rubbed all over the scalp with a painter's stiff brush, especially on the affected parts :—℞ Hyd. perchlor, 0·5 ; Tinct. cantharid., 25·0 ; Florentine balsam, 50·0 ; Eau de Cologne, 150·0. In the evening the patches are to be rubbed in a like manner with the undernoted :—℞ Acidi salicylici, 2·0 ; B. naphthol. 10·0 ; Acidi acetici glacialis, 15·0 ; Olei ricini, 100·0. The conditions laid down must be rigidly followed if a successful result is to be hoped for. Nothing more than redness ought to be occasioned. In all cases a fresh growth is visible in the first month of treatment. In two instances it was observed even on the fifteenth day, but in one of these the disease had lasted eight months, in the other eight days, and such are precisely the most favourable circumstances. An alopecia treated from its beginning is cured most easily, and the same may be said of one treated towards the eighth month, a period at which a certain number of cases tend to spontaneous recovery. Complete cure is effected before the end of the second month. In cases of total baldness it is, however, less successful, though it has caused reproduction of hair even in these, though after a proportionally longer time. It should be combined with suitable constitutional measures.—*Annales de Dermatologie et de Syphiligraphie*, July, 1892. (Dr. Jamieson's Periscope, Edinburgh Journal, April, 1893, p. 972.)

BOCKHART'S IMPETIGO.

(*Annales de Derm. et. de Syph.*, May, 1892). "Epidermic Abscesses Caused by the Micrococci of Pus." This was the subject of a communication made to the Medical Association of Hamburg, January 12, 1892, by Unna. He passes in review the different views that have been held, from time to time, with regard to the propriety of recognising a morbid entity distinct from a pustular eczema. It was owing to the writings of Hebra that Willan's impetigo was made to disappear in favour of eczema impetiginosum, until Bockhart, in 1887, showed that there was a pustular affection, caused by the staphylococcus aureus et albus, and distinguished from eczema and other pustular diseases by a series of specific symptoms. In addition to this Bockhart grouped with this two other affections, hitherto isolated and misunderstood, namely, furunculosis and sycosis "coccogéne." It is easy to confound, according to Unna, other pustular conditions with impetigo, or epidermic abscesses. In this affection the pustules are very variable in size ; generally speaking are circular in form, the larger ones often oval. They appear primarily as punctate elevations, which gradually change to the impetiginous pustule, which becomes more and more elevated without increasing in circumference. The colour is at first a bright, later a greenish yellow. The pustule seldom bursts spontaneously. Its contents are a pure drop of pus, and here and there where a serous exudation occurs secondarily, the pus forms a sediment. One of the chief characteristics of the pustule is the inactivity of its periphery, as there is, as a rule, no surrounding redness, or if such exists, it is always slight. The pustules form in from six to twelve hours, remaining stationary for several days, and then begin to dessicate, a process which lasts from two to fifteen days, according to circumstances. As new pustules are never produced except by inoculation from without, their appearance depends solely on the mode of infection and the frequency of exposure. They are almost always disseminated, often at such distances that the only explanation is to be found in transportation by means of the nails. The lesions give rise to few subjective sensations, and do not itch. Histologically the pustule of impetigo is nothing more than a quantity of pus situated beneath the horny layer, between the latter and the intact rete. Small clusters of the pus micrococci are to be seen between the horny layer and the pustule. In the rete at the base of the drop of pus they are wanting, as well as in the corium. The micrococci attract immediately a fringe of pus, as soon as they have become lodged beneath the horny layer. The cocci do not penetrate the rete, and far less the corium. The inflammatory phenomena in the capillary vessels are unimportant, often entirely absent. The rete is not, as one

would suppose, filled with leucocytes. These pass to the attracting micrococci by way of the sweat glands and other channels. Following the late experiments of Leber and Pfeffer, we must regard chemotaxis as the chief factor in the production of these epidermic abscesses, and Unna regards it as not improbable that they may be caused by other organisms beside the known staphylococci. (Boston Medical and Surgical Journal, October 6, 1892, p. 332.)

BROMIDROSIS.—Treatment.

℞.—Naphthol, gr. xxiv.; glycerine, ♏ xlviij.; alcohol, f ℥j.—M. S.—As a wash for the feet, night and morning; followed by—℞.—Powdered naphthol, gr. viij.; powdered starch, ℥jss.—M. Kaposi, *Correspondenzblatt f. Schw. Aerzte*, No. 20. (Medical News, November 26, 1892, p. 611.)

CHILBLAINS.—Treatment.

In *Erythema pernio* (Chilblain) our object must be to accelerate the stagnant circulation. For this purpose the affected parts should be warmly, but not too tightly, clothed, and brisk walking exercise should be taken if the state of the feet permits of it. If cold feet are much complained of, the patient may be recommended, just before stepping into bed, to plunge them into cold water and then rub them dry with a rough towel, after which a hot bottle may be used. A great variety of stimulants has been employed, such as rubbing the affected parts with snow, camphorated oil, linimentum ammoniæ, or a mixture composed of equal parts of white of egg, spirits of turpentine, and distilled vinegar (Erasmus Wilson). Devergie advised the moistening of the parts with spirits of wine and then setting fire to it; while others apply sinapisms from time to time. Dr. Wallace, of Colchester, has found unbroken chilblains to disappear invariably within a few days by "dabbling on them a good lump of ordinary made mustard" every night before the fire, and rubbing it in until the part is quite dry and warm. These, and many others of a similar kind which need not be mentioned, are all recommended with the same object, viz., to stimulate the circulation of the part. If, however, ulceration has occurred, warmth, elevation, and rest are required, and friction should be avoided. The ulcers must be treated, according to their nature, on the principles applicable to ulcers in general, but, if sluggish, a favourite remedy is equal parts of spirits of turpentine and resinous ointment. In all cases the general health requires careful attention; tonics are usually indicated, among which arsenic and quinine must be

placed in the first rank; and digitalis may be tried if there are any signs of heart failure. (Dr. McCall Anderson, Edinburgh Medical Journal, November, 1892, p. 408.)

DERMATITIS HERPETIFORMIS.

At the Harveian Society, on November 3, 1892, Dr. Stephen Mackenzie read a paper on this subject. He said the disease had been described under various names as pemphigus prurigi-nosus, herpes gestationis, hydroa, &c. He adopted the name Duhring first suggested—namely, dermatitis herpetiformis—as most descriptive. It might be defined as a cutaneous neurosis characterised by the multiformity of its manifestations, which might consist of erythematous, papular, vesicular, bullous, and urticarial eruptions, appearing concurrently or consecutively, and usually attended with pigmentation of the skin. A grouping of vesicles was the most characteristic feature, and was present in most cases at some part of their course. It was usually attended with great itching and burning. It ran a chronic course, with exacerbations or relapses and intervals, and usually terminated spontaneously, but might end fatally. It was attended with some, but usually not great, disturbance of the general health. It affected both sexes, at all ages, but was most common in the middle period of life; in women it was often connected with pregnancy, but might occur independently of it. He gave reasons for not including under this name the affection that had been described by Hebra as impetigo herpetiformis, but Duhring and Jamieson regarded it as only a pustular variety of the disease. He gave notes of twelve cases of the disease observed by himself. One of the patients, a woman aged forty, with very characteristic eruption, was exhibited. He pointed out that the cases he narrated brought out the characteristic features of the disease, its polymorphic character, chronicity, and relapsing course. The vesicular and bullous varieties had, in his experience, been the most common, and in nearly all a grouping of vesicles, on the herpetic plan, had been present at some period of the disease. All parts of the body were liable to be attacked, but in most cases the palms and soles escaped. Severe burning and itching was the almost universal rule, but, in two cases had been absent. In pregnant women (herpes gestationis) it might accompany, follow, or precede pregnancy. The disease was most liable to be mistaken for vesicating and bullous erythema and pemphigus, but might be distinguished from these by its polymorphic character and severe pruritus. As regards its pathology there were no certain anatomical facts to go upon, but he thought it was either a peripheral neuritis or a functional neurosis. As regards treatment, no internal remedy exercised

a certain curative influence, but arsenic sometimes succeeded, and where it failed to cure it often controlled it. Of local treatment, soothing applications failed to give more than temporary relief, and sulphur, as recommended by Duhring, was most deserving of trial. It should be used of the strength of two drachms to the ounce, and be energetically rubbed in so as to break down the vesicles, papules, and bullæ, and produce an impression on the nerve endings in the skin. (British Medical Journal, November 19, 1892, p. 1113.)

DERMATOL AS A LOCAL REMEDY.

Werther (*Deut. med. Wochenschr.*, No. 25, 1892) employed dermatol as a dressing in wounds with defective epithelium, burns, chronic ulcers of the leg, and opened carbuncles and phlegmons. In no case did the remedy, used in powder form, cause any injury to the wound or to the surrounding skin, nor in any case did it call forth systemic toxic effects, even where the wound was covered with a thick layer of the substance. The most striking results were noted in burns of the second degree, in which, after removal of the epidermis, the remedy was used as a dusting-powder, healing taking place rapidly, more so than with iodoform, and having the advantage over the latter in not being liable to produce poisoning. Excellent results were also obtained in chronic leg ulcers. Dermatol may, therefore, be recommended for its drying, astringent, and antiseptic properties, as well as for its being innocuous and free of odour. (The American Journal of the Medical Sciences, February, 1893, p. 210.)

ECZEMA.—Treatment.

Veiel has summarised his methods of treating eczema very happily. In cases where there is no oozing he finds dry, cold applications, as ice-bags wrapped in a cloth, or powder-bags containing starch, or the glycerine jellies, the best. By means of the latter it is frequently possible to nip a commencing acute eczema in the bud, though not without some pain in certain cases. If the jellies are not borne well, or weeping occurs, treatment by dusting powders proves the best mode, continued till the more acute manifestations abate. Persistent weeping places heal most rapidly under Unna's zinc salve muslins or Lassar's paste, or by the employment of the salicylic soap plaster introduced by Pick. In the scaly stage a 5 per cent. tannin ointment acts admirably. When this is used over the whole body, he has repeatedly seen swelling of the gums and slight salivation appear. In chronic eczema he has seen many

cases recover when treated by Pick's sublimate gelatine and salicylic soap plaster. The latter is pre-eminently useful as a disinfectant covering and to cause absorption of pachydermatous infiltrations. In thickened eczema of the palm and sole the salicylic plaster muslins of Unna are to be preferred. On hairy parts, particularly on the head, a strong 10 per cent. salicylic ointment soon reduces an oozing eczema to dryness. There are, however, many examples of eczema in which we must have recourse to tar. There is, indeed, yet no remedy which can completely replace tar in the treatment of eczema, particularly in those forms in which the nervous system is markedly involved. To use tar properly, to habituate the skin to it, is at once one of the most difficult and the most grateful of tasks. The rule that tar must only be used to dry patches of eczema is, no doubt, a correct one; yet there are many weeping eczemas, especially on the face, which cannot be rendered dry without the application of tar, or if dry, unless tar be used they constantly weep afresh. He esteems tar-soap as the mildest preparation, the lather, painted on twice a day, is, he states, often quite sufficient to cure a widespread eczema. This is specially efficient in the universal scaly eczema of elderly people, particularly when conjoined with zinc jelly, which protects from irritation occasioned by the friction of the clothes. Tar ointments come next to tar soap, a commencement being made with 1 per cent., gradually increasing to 50 per cent. As a basis for these ointments he prefers tannin cold cream, or the unguentum vaselini plumbicum. It is often possible in this way to habituate the most irritable skins to the application of tar, and to render them completely resistant to atmospheric influences, especially if, towards completion of the cure, weaker tar ointments are rubbed in for some time only at night, to which patients make the less objection, as the ointment can be so readily wiped off in the morning. In cases where the infiltration of the skin is more considerable, and where the tar preparations act too slowly, he uses chrysarobin or pyrogallol, protecting the neighbourhood of the affected parts by zinc jelly. He gives the preference to chrysarobin on the scrotum, at the anus, on the neck and flexures of the joints, while pyrogallol suits better in obstinate eczemas of the nipple, the palms, and soles. In the case of both remedies he begins with a 2 per cent. vaseline ointment, increasing, if possible, to 10 per cent. In eczema situated at the junction of the mucous membrane and skin, a simultaneous treatment of the mucous catarrh is absolutely necessary. For the eyes, a watery solution of salicylate of zinc, $\frac{1}{4}$ per cent., has suited best; for the nose, a boracic zinc vaseline, containing 20 grains of boracic acid, half an ounce of oxide of zinc, and an ounce of vaseline; for the rectum and vagina, suppositories of

tannin 10 per cent.—*Ergänzungsheft zum Archiv für Dermatologie und Syphilis*, 1 Heft, 1892. (Dr. Jamieson's Periscope, Edinburgh Medical Journal, November, 1892, p. 482.)

ECZEMA, IMPETIGO, AND BOILS OF THE EXTERNAL MEATUS.

Tröltsch's observation that there is no justification anatomically for speaking of catarrh of the external meatus holds perfectly true, except as regards the occurrence of acute moist eczema. This disease, in one phase, may appear between the ear and the head, but a variety much less amenable to treatment is that met with within and around the meatus, and is originated by the patient's scratching of the ear to alleviate irritation caused by some chronic discharge. For its successful treatment arrest of the discharge from the internal meatus is manifestly a requisite. Careful cleansing of the meatus and the application of a small quantity of dilute nitrate of mercury ointment —preferably first melted—are remedies generally efficacious. Other ointments, or vaseline alone, may be better tolerated, or lotions (for example, a solution of chloral hydrate) may prove yet more successful. In chronic cases the application of oil to remove scabs, and then of tar lotion (Wright's liquor carbonis detergens ℥ j to ℨ iv of water) is usually effective. Contagious impetigo, the result of inoculating with staphylococci is characterised by a thick and purulent discharge, which with scabs formed in the meatus, sometimes obstructs the passage of sound. The exhibition of tonics and bread poultices, and carbolic lotion for the ear, to be followed, if needful, by applications of calamine ointment, are useful remedies. Staphylococcus pyogenes, var. albus, is the organism usually present in the pus of boils in the external auditory meatus. Foul air, as I have shown, and the employment of aural applications in a putrefactive condition are among the causes of boils. The occurrence of furunculosis as an epidemic points very clearly to its parasitic origin, and this again accounts for the beneficial effects of alcoholic solution of boracic acid in its treatment after the flow of pus has begun. The relief of pain due to tension and the resolution of the boil may be effected by a free upward incision. One of the possible results of otitis or eczema affecting the external auditory meatus, especially in damp and impure atmospheres, is the appearance there of some one of the species of aspergillus, generally A. niger. This is best combated by the injection into the ear of alcohol in warm water. (Mr Field, British Medical Journal, December 10, 1892, p. 1285.)

ERYTHEMA MULTIFORME AND NODOSUM.—Treatment.

In these cases irregularities of diet and derangements of digestion must be carefully inquired for and corrected, and if this does not succeed, and especially if the eruption occurs in the subjects of the rheumatic diathesis, anti-rheumatic remedies—*e.g.*, salicine in twenty-grain doses every two hours—may be tried. In chronic relapsing cases, when the state of the digestive organs is satisfactory, arsenic may be given. Local applications may be resorted to in some cases, such as water dressings, or lotions containing Goulard's extract, or carbolic acid, in the proportion of a tablespoonful mixed with an ounce of glycerine and ten ounces of distilled water. In erythema nodosum the recumbent posture is generally necessary, and the limbs may be raised upon pillows. In many instances treatment seems to be of little avail, and a spontaneous cure is a common result. (Dr. McCall Anderson, Edinburgh Medical Journal, November, 1892, p. 407.)

HYPERIDROSIS OF THE FEET.

℞.—Naphthol., gr. xxij; glycerine, gr. xlviij; alcohol ℥j.—M. S. Apply night and morning; then dust on the following: ℞.—Pulv. naphthol., gr. v; Pulv. amyli, ℥j. Every morning. One may also dust the stockings with: ℞.—Sodii salicylat., gr. iv; Potassi permanganat., gr., vj; Pulv. talc., ℈iv; Bismuthi subnitrat., ℥iss.—M. Kaposi, *La Semaine Méd.*, No. 46, 1892. (Medical News, October 15, 1892, p. 440.)

LUPUS.—Treatment.

Encouraged by the accounts of satisfactory results obtained by Lannelongue, Augagneur, Dubois, and other French surgeons in tuberculous diseases of bone by means of injections of sulphate of zinc, Dr. J. J. Fedoroff of the Borntskovski District Hospital has employed the same treatment for lupus with excellent results. He publishes two cases in the *Vrach*, No. 27, in both of which the disease was of long standing. His plan was before injecting to shut off the affected locality from the general circulation by compress bandages, and to induce local anæsthesia with cocaine. A ten per cent. solution of sulphate of zinc was used, about eight minims being introduced at each puncture. From two to four punctures were made around each ulcer, the point of the needle being directed under the base. About the third day the circumference became red and swollen; the next day necrosed tissue appeared on the base of the sore, which came away three or four days later, revealing a healthy granulating surface, and

in from a fortnight to three weeks cicatrisation was completed. In the cases thus treated there were several sores, and these were not all treated at the same time, it being considered inadvisable to make more than ten punctures at one sitting. None of the ulcers required any renewal of the treatment. If cocaine was not employed a severe burning pain was produced by the injections. With cocaine this was very much lessened. The after treatment consisted simply in a glycerine dressing. There was never any rise of temperature. (The Lancet, November 26, 1892, p. 1241.)

LUPUS VULGARIS.—Cod-liver Oil and Iodoform in.

Zilgien (*Rev. gén. de Clin. et de Thérap.*, 1892, No. 3) reports the case of a woman, thirty-three years of age, who had a patch of lupus on her left cheek, which was cured by the curette. The right cheek then became in like manner diseased, upon which iodoform was used, but unsuccessfully, whereupon iodoform gauze, dipped in cod-liver oil, was applied as a dressing, which was daily alternated with simple iodoform powder, cicatrisation taking place rapidly wherever the oil was applied. (The American Journal of the Medical Sciences, August, 1892, p. 227.)

PLASTERS IN SKIN DISEASES.

Brocq (*Journ. of Cut. and Gen.-urin. Dis.*, July, 1892) considers the medicated plasters, which have been perfected by the well-known apothecaries of Paris, Vigier and Cavailles. The usual excipient used is lanolin and elastic gum dissolved in benzine. The diachylon plaster may also be employed as an excipient in many cases, and particularly in mercurial preparations, on condition that it has been recently prepared. The simple plaster of the French Codex, to which is added a little dextrine, may be used for oxide of zinc, employed to protect the skin from friction and traumatism. Cod-liver oil plasters are useful in the prurigo of Hebra, to which a little menthol or naphthol may be added. Those of salicylic acid, five to ten per cent., especially combined with green soap or pyrogallol, are efficacious in the hyperkeratoses; the "red plaster" of Vidal, in ecthyma, impetigo, furuncles, suppurating folliculitis, and dry eczema; the phenicated plaster mixed with the biniodide, and the ichthyol and sulphur plasters in acne; resorcin, or resorcin and creasote, and salicylic acid and creasote plasters in lupus; oil of cade, pyrogallol and chrysarobin plasters in psoriasis; and chaulmoogra plasters in lepra. (The American Journal of the Medical Sciences, February, 1893, p. 211.)

PRURITUS VULVÆ.

In a clinical lecture last year Olshausen divided pruritus of the vulva into two main groups: (1) where it is symptomatic, as in discharges, diabetes mellitus, &c.; (2) where it is a definite entity, when one looks upon it as a neurosis. Seeligmann calls in question whether these groups include all the cases met with. He points out that discharges from the genitals, both infectious and simple, are very frequent in women; and mentions the fact that out of thirty-seven cases of diabetes mellitus in women, only four suffered from this troublesome affection. The notion of a neurosis, the expression of which is confined to the small branch of the pudendal plexus supplying the outer skin of the vulva and the mucous membrane of the vestibulum, in an individual otherwise free from all nervous phenomena, seems to him far-fetched. He states his belief that in almost all cases of pruritus of the vulva there is a micro-parasitic local infection. Micro-organisms have been already found in the so-called vulvitis diabetica; and the remedies empirically used in the treatment of the pruritus, such as carbolic acid, sublimate, salicylic acid, &c., are potent in the destruction of low organic life. In a case studied bacteriologically, Seeligmann isolated the bacterium ureæ. The patient, a healthy married woman of forty-one years, suffered severely from pruritus for three years, for which treatment seemed almost hopeless. There was no discharge, but the orifice of the urethra looked reddened and projecting forward. Further examination revealed a tumour, growing from the urethra and going as far back as the entrance into the bladder, and the unconscious passage of minute quantities of urine. Removal of the growth caused cessation of the pruritus, and the obvious explanation was that the dribbling away of urine allowed the bacteria developing in the urine to settle and propagate there. Seeligmann sums up his ideas in the matter of treatment as follows:—(1) to seek for and exclude all possible sources of a micro-parasitic infection (latent diabetes mellitus in the husband, cleansing of clothing, water-closets, &c.); (2) to remove the tendency of the outer skin of the vulva to become the seat of organisms; and (3) to destroy them when present.—*Berlin. klin. Wochenschr.*, No. 43, 1892. (The Practitioner, April, 1893, p. 287.)

PSORIASIS.

In the *Annales de Médecine*, 1891, Dr. Georges Thibierge publishes some interesting observations upon the subject of psoriasis, one of the most common diseases of the skin, though less frequent in Austria and America than in France and England. It is a chronic inflammatory infection, characterised

by dry, red, primarily roundish patches, covered with imbricated, silvery, adherent scales, occurring chiefly on the extensor surfaces. Bazin recognised several different kinds of psoriasis, among them the arthitic, herpetic, and syphilitic; but English authors incline to the opinion that there is but one psoriasis. The scales resemble thin drops from a wax or tallow candle, easily pulverised, and may be bent like goldbeater's skin. Pricking off the scales exposes to view a number of bright red dots which bleed easily, and are the apices of the hyperæmic papillæ. The disease may be general, but it is more often upon the trunk, on the back, and especially on the chest. It attacks two regions by preference, the level of the throat and the knee, yet it may appear almost anywhere. The two abnormities most resembling psoriasis are seborrhœal eczema and late manifestations of syphilis. Anatomical changes consist in thickening of the horny layer of the skin, increased development of the rete layers, except over the papillæ, and deep down, a disappearance of eléidine. In the upper part of the corium there is cell exudation and dilated vessels. Psoriasis is not congenital, though it appears in babies, in patches about the elbows and knees preferably. Applications of tinctures of iodine or black soap will often serve to cure this infantile psoriasis. Before twenty the disease is rare, and most common between twenty and thirty. Treatment cleans up the patient, so to speak, but permanent cure is not obtainable by any remedy yet known. Alcoholism, pregnancy, or lactation may induce a relapse ; and unrecognisable causes also bring about this unhappy result. The disease is not fatal to life, but often fatal to activity and happiness, its peculiar characteristics rendering its victim repulsive in shops and offices, and in general society. Heredity, a lowered standard of health, mental emotion, overwork, and injury, are set down as causes. Recent cases are worse in winter, older cases in the spring. It attacks both sexes indiscriminately, and rank and occupation have no influence. Unless there are indications for arsenic in the general condition, the writer considers its employment questionable. Haslund, of Copenhagen, has obtained excellent results with iodide of potassium. Certain dermatologists think external remedies the only ones necessary. Oil of cade or tar ointment constitutes the classic treatment. But oil of cade has a disagreeable odour, acts more energetically than chrysophanic or pyrogallic acid, and often produces acne. Chrysophanic acid is quick in action, inducing desquamation rapidly ; but it requires most careful watching, as it stains linen and the hair, turns the skin purple, and brings about serious inflammations if it comes in contact with mucous membranes, to say nothing of a general intoxication. It may in some instances provoke violent skin lesions, or

glandular and phlegmonous inflammation. Chrysophanic acid may be used with gutta-percha and chloroform, ten parts of the acid, ten of gutta-percha, and one hundred of chloroform. The latter, evaporating, leaves a protective substance that keeps out air and foreign bodies. Pyrogallic acid may also bring about constitutional disturbances, though less poisonous than chrysophanic acid. It stains linen black. Naphthol is without danger of any kind, but its action is slow. Aristol is uncertain. To remember that treatment can be palliative only is to be free from surprise and disappointment. (New York Medical Record, November 5, 1892, p. 541.)

RESORCIN PASTE IN THE TREATMENT OF SKIN DISEASES.

Geo. T. Elliott (*Journ. of Cut. and Gen.-urin. Dis.*, May, 1892) again calls attention to the value of this new vehicle for the application of remedies in cutaneous diseases. The formula is as follows:—℞. Bassorin, 48; dextrin, 25; glycerine, 10; water, q. s. ut ft. 100. The resulting paste is a smooth, jelly-like mass, resembling petrolatum in colour. It is odourless and unobjectionable. It must be kept in a closed glass jar. Various substances may be incorporated with it, which, owing to the adhesive properties of the paste, are brought in close contact with the skin. It is of more service in winter than in hot weather. It proves useful in papular acne, rosacea, seborrhœic eczema, and in the parasitic skin diseases. The absence of greasiness and stickiness, and its cleanliness, commend it in many cases, and especially in those cases where fatty substances are not well borne. (The American Journal of the Medical Sciences, August, 1892, p. 229.)

SCROFULOSIS.—Creasote in.

Sommerbrodt (*Berliner klinische Wochenschrift*, 1892, No. 26, p. 641), who was one of the earliest advocates of the treatment of tuberculosis by creasote, speaks highly of the same drug in the treatment of scrofula. The only precaution to be observed is not to give too small a dose. To children of seven years or over he does not hesitate to give as much as a gramme of creasote a day, either in capsule or dropped in milk or wine. This dose is reached gradually but quite rapidly, usually within ten days from the beginning of treatment. For children younger than six years, he commences with a drop a day, in milk or wine, and increases this until a daily dose of seven to ten minims is reached. The drug is best administered immediately after the meal, so as to avoid gastric irritation. (Ibid., February, 1893, p. 226.)

STRUMOUS CICATRICES.—Excision of.

In a paper read before the French Congress of Surgery (*Le Progrès Médical*, 1892, No. 18, p. 347), Calot reports signal success in removing the unsightly and often pigmented cicatrices resulting from the spontaneous opening of suppurating lymphatic glands of the neck. With a bistoury he removes the entire extent of altered skin, encroaching one or two millimetres upon the normal integument. The edges of the wound are then freed from the underlying tissue and brought together with fine sutures, so as to make a linear closure of the exposed surface, no drainage being required. The result in all of thirteen cases thus treated has been eminently satisfactory, showing only a fine linear scar in place of the former ugly, irregular cicatrix. (American Journal of Medical Sciences, August, 1893, p. 248.)

SYCOSIS.—Non-parasitic Treatment.

In a purely local disease, dietetic or general treatment is not necessary, save in so far as applies to the removal of any irritant —cosmetics, snuffs—that may seem to have some etiologic relationship to the malady. Cod-liver oil given internally seems, as in so many other affections, to control the tendency to pus-formation; it should be given freely in obstinate or extensive cases. Calcium sulphide is absolutely useless. *Local treatment.*—The beard or moustache must be removed from the area affected, as it interferes with treatment. Shaving is liable to further irritate the skin and to cut off the hair so short that it buries itself in the inflammatory papule and cannot be extracted. Have the hair simply cut close. Now epilate every affected hair in the area. If there are too many for one sitting, take them in sections. Hair-bulbs surrounded by pus are loose, and can be removed without causing pain; the proceeding is as rational as to open a furuncle and to remove the splinter of wood that causes it. Even before suppuration has set in, every hair that is evidently the centre of inflammatory action should be pulled out. By this means a chief source of irritation is removed and free exit is afforded the sero-pus. In this way, destruction of the hair-follicles and their surroundings, as well as baldness and scarring, are best avoided. For this purpose a forceps with flat, unserrated blades is more convenient than the ordinary kind. Each hair must be extracted singly, traction being made in its axis. The operation is painful, but necessary; it should be repeated at intervals by the physician, since neither the patient nor his friends will have sufficient skill and fortitude to do it themselves. The way being thus prepared, soothing ointments are to be used. A favourite of mine is the following, which is sedative and very bland:—℞.—Tinct. opii, ʒss—ʒj; acid. carbol., gr. x; ungt.

aquæ rosæ, ℥j.—M; S.—Apply twice daily; keep on constantly. A little later, when the first acute stage has passed, astringent applications are in order. Thus: ℞.—Ungt. diachyli, ℥ss; ungt. zinci oxidi, ℥ss—M; or, ℞.—Hydrarg. chlor. mit., ℈ss; petrolati, ℥j.—M. Finally, the following may be employed: ℞.—Ichthyol, ℈ss; lanolini, ℥j.—M. It is well not to forget, and not to let your patient forget, that perifolliculitis of the beard is frequently a very obstinate disease. (Dr. W. S. Gottheil, Medical News, September 24, 1892, p. 345.)

SYCOSIS.—Parasitic Treatment.

Local treatment.—Remove the crusts with olive oil, warm water, and soap; then get rid of the excess of hair by cutting—not by shaving—for the reasons already given. If epilation of the affected hairs is required in perifolliculitis, all of the hairs must be removed in ringworm. It is impossible to tell with certainty which hairs are healthy and which are diseased. Hence every hair of the affected area and for some distance around it must be pulled out. The process is painful, for the hairs are often firmly implanted; nor does cocaine, either applied externally or injected, help matters much. The pain must be borne, for without removing the hair and opening up a route for our remedies no parasiticide can penetrate to the depths of the follicle in which the mass of the fungus is growing. Even after epilation it is sometimes difficult to find an agent strong enough. Go at once to:—℞.—Hydrarg. chlorid. corrosiv., gr. ij–iv; Glycerini, ℥j; Aq. cologniensis, ℥j.—M. S.—Apply twice daily. Start with the weakest solution, and rapidly increase its strength. For small diseased areas emplastrum hydrargyri or unguentum hydrargyri does fairly well. A solution of the oleate of mercury—from 5 per cent. to 10 per cent.—in oleic acid is of use, and should be painted on twice daily. But in almost all cases we are finally compelled to have recourse to mercuric chloride, and we might as well start with it. A twelve grain to the ounce solution has proved necessary in some few cases; of course, such strong solutions must be applied by the physician himself; they cannot be entrusted to the patient. (Dr. W. S. Gottheil, Medical News, September 24, 1892, p. 345.)

TRICHLORACETIC ACID IN SKIN AND GENITAL DISEASES.

A. Lanz (*Archiv für Derm. u. Sypy.*, Heft 4, 1892) speaks highly of the value of this substance as an application in papilloma, warts, pigment spots, and in chronic and papillomatus urethritis. It is almost painless, and, using caution, does not scar appreciably. (American Journal of Medical Sciences, February, 1893, p. 212.)

AFFECTIONS OF THE EYE, EAR, THROAT, AND NOSE.

CHRONIC OTITIS MEDIA, REMOVAL OF THE STAPES FOR.—Results.

In the *Boston Medical and Surgical Journal* for November 10 and 17, 1892, Dr. Frederick L. Jack publishes the records of sixteen cases of chronic catarrhal otitis media and chronic suppurative otitis media in which this operation has been performed, and states the results of this experience as follows: While recognising the possibility of error in all human calculations, the results obtained in these cases are of such a nature as to lead one to be very hopeful of the future possibilities of the operation. Any fear of danger connected with it is obviated by the fact, that even in two of the above-mentioned cases where there was considerable suppuration at the time of operating, there were absolutely no bad results, but on the contrary, one of the ears healed entirely within four or five days, and the other was greatly improved. In three cases the patients complained of vertigo, which, however, entirely disappeared within four or five days. In general, the cases showed very little tendency toward inflammatory reaction, and the ears were, after a few days, entirely dry. Many of the cases also have been seen since writing this paper. The hearing power in all is as good as when reported and in some a still further improvement has been noticed. The effect of the operation on the hearing, as tested by the watch, in some was not marked in either way, indicating in some cases a slight gain, in others, a slight loss. No attempt is made to explain this but the peculiarity if sought for among deaf persons is frequently observed. The test by König's rods met with a similar result. In one of the above cases a curious fact was brought to light. During the bone test with the tuning-fork, before the operation, the patient entirely failed to hear it in the worst ear, but on a repetition of the test after the operation, she heard it better in the ear operated on than in the other. Many of the cases were tested, both before and after the operation, by others than myself, with nearly corresponding results. There still remains to be mentioned the one result of this operation which gives it its importance, and that is, the very marked improvement in hearing the human voice which is thereby obtained. If persons who have heretofore heard only with difficulty, can be made to hear with ease, by treatment unattended with danger, the operation as above described which has accomplished this result, is certainly worth consideration. As to the reason why this effect is produced, I have no theory to offer other than the simple supposition that it is by the removal

of a mechanical obstruction to the sound-waves. The results obtained are strangely at variance with the statement of most authors on diseases of the ear, that expulsion of the foot-plate of the stapes destroys the power of hearing. Advances in aural surgery in the last few years have been gradually leading up to this step and now this last advance opens up a new field and seems to offer a more encouraging outlook for permanent relief to the deaf than any operation heretofore done. (Boston Medical and Surgical Journal, November 17, 1892, p. 479.)

CONGENITAL CATARACT.—Treatment of.

M. Dor (*Revue générale d' Ophthalmologie*, tome xi, No. 5) classifies these cataracts as pyramidal, zonular, nuclear, total, and the unusual. In the great majority of pyramidal cataracts, vision is such that no treatment is required; yet in some an iridectomy for optical purposes may be indicated. For zonular or lamellar cataract, when the opaque portion is not over five or five and a half mm., he does iridectomy, the sphincterectomy with Wecker's scissors being an ideal operation but difficult to practise. If the opaque portion of the lens be over five and a half mm. across, the lens is removed, the method of removal depending on the age of the patient. Under eight or ten years this will be by discisson, repeated if necessary. Between ten and twenty years discission is done to hasten the opacification, and as soon as this is sufficiently advanced the lens is extracted by a modified linear method. Beyond twenty years the preliminary discission is to be followed by extraction with the upward flap operation without iridectomy. Central or hard nuclear congenital cataract is to be treated in precisely the same way as the zonular. Total congenital cataract is the form most frequently hereditary, often appearing some time subsequent to birth. If soft or liquid, the operation of choice is discission, which in case of undue irritation can be followed in a day or two by opening the anterior chamber with a paracentesis needle or lance-shaped keratome. The operation by suction is abandoned. In cataracts of unusual forms each case must be considered by itself, and treated by the correction of ametropia, iridectomy, discission, or extraction according to the principles laid down for the other varieties. (The American Journal of the Medical Sciences, February, 1893, p. 213.)

EYE-PARALYSIS.

The following conclusions are appended to an exhaustive article on this subject:—(1) All cases of lateral conjugate paralysis are of central origin. (2) When the paralysis is on the same side as other paralyses the lesion is on the opposite side of the brain.

Such paralyses as a rule are transitory and follow almost any sudden lesion, and often only show themselves as a prevailing position of the eye, and not as a true paralysis or even paresis. (3) When the paralysis is crossed with the paralyses below, the lesion is in the pons-medulla region. The above three are equally true of spasms. (4) A gradual development of conjugate paralysis clearly points to the region of the sixth nucleus of the same side as affected. (5) Paralysis of up or down motions or both motions indicate disease in the region of the corpora quadrigemina, but may be due to disease in the third nerves proper, at the point of exit. (6) Reasoning from analogy, paralysis of convergence points to disease in the central gray below the aqueduct, but as yet autopsies are lacking. (7) Picked paralysis of parts of a third nerve strongly suggests central disease, but is not proof of it. (8) A majority of the cases of eye paralysis occur in the syphilitic. (9) A paralysis which changes rapidly, quickly showing fatigue, is probably central in origin. (10) Transitory paralysis in the syphilitic is strongly suggestive of future tabes. (11) An eye paralysis, however simple it may seem, is always a just cause for suspicion of trouble to come, and demands a prompt and thorough examination of the patient. (12) There is no evidence that there is any form of connection between the sixth nucleus and the third, except in the cerebrum. (Boston Medical and Surgical Journal, October 27, 1892, p. 400.)

FOREIGN BODIES IN THE CORNEA.—To detect them.

An excellent method of searching for the foreign body, and one that has the advantage of being available during its removal, is to look for the interruption that it causes in the reflex obtained from the corneal surface. To do this, the patient should be made to face a window with a large open sky-space, while the surgeon takes his position so as to obtain the reflection of the sky-space from the surface of the cornea, a very good position being to stand behind the patient, looking down on the cornea. The patient's eye is then turned from point to point, so that the reflection is obtained from all parts of the cornea in succession. If the window with clear sky-space is not obtainable, a piece of plain white paper or cardboard strongly illuminated, and held close in front of the eye to be examined, will furnish the required reflex from the corneal surface. The essentials are that the reflex shall be bright, uniform, and large enough to enable the observer to go rapidly over the whole cornea without missing any part of it. If on any part of the surface there is an irregularity, as an ulcer or a foreign body, this will cause an interruption of the reflex, and be immediately noticeable.

A great help in making such irregularities prominent is the careful drying of the cornea with a little absorbent cotton, a method to the full value of which attention has been called by Dr. M. W. Zimmerman. The removal of all moisture does not impair the reflex from the sound cornea, but lays bare any irregularity or loss of substance, which when filled with fluid, would give almost the normal corneal reflex. Another aid to the detection of foreign bodies in the cornea is the use of a solution of fluorescin. A good solution consists of fluorescin, one grain; sodium carbonate, two grains; distilled water, one fluidram. A single drop of this is placed on the suspected cornea, and after two or three minutes the excess is allowed to be washed away by the tears. It is then found that while on the uninjured cornea not the slightest effect has been produced, the corneal tissue in the neighbourhood of any recent abrasion has been stained a noticeable light-green. This discolouration at once directs attention to the locality of the injury, and the stained tissue furnishes a background against which any foreign body of dark colour is more readily seen. (Medical News, November 5, 1892, p. 529.)

GLAUCOMA.—Operative Treatment.

Collins (Royal London Ophthalmic Hospital Reports, Part ii, December, 1891) publishes a paper based upon the pathological examination of twenty-three eyeballs which had been operated upon for glaucoma. In twenty of these twenty-three eyes an iridectomy had been performed, in two a sclerotomy, and in two an optico-ciliary neurotomy, one subsequently to an iridectomy. Of the twenty in which an iridectomy was performed thirteen were excised on account of the return of tension, in most accompanied by pain; three because they excited sympathetic ophthalmitis (in two of these the tension was increased at the time of excision); one on account of the escape of the lens and prolapse of the ciliary body; one on account of wound of the lens accompanied by inflammation and pain; one for hypopyon keratitis, ten years after the operation, during which time the tension had remained normal; and one for iritis and pain, the tension having been normal for a year. In all except four of these cases it was found that a portion of the root of the iris had been left behind, and that in all but one of these nineteen cases the remaining root of the iris was adherent to the cornea, blocking the filtration-angle in the region of the coloboma. In several of the cases also, the cut end of the iris had become healed in the cicatrix, making it additionally secure in its faulty position. In one case only the root of the iris was not adherent to the cornea, and the angle of the chamber was widely open. That it is possible to remove the iris quite up to its root, was shown by

four cases. The subsequent loss of the eye in these cases was due to the following conditions:—In one the lens-capsule was adherent to the wound; in one a piece of detached iris was incased in the wound; in one, owing to an ulcer of the cornea at the point of incision, the lens-capsule became adherent; and in the fourth the lens was wounded at the time of operation and became adherent to the cornea. Two of the cases in which the iris was removed to its root were acute cases; and the others, being more chronic, it is fair to suppose that the adhesion of the iris to the cornea existed before the operation. The practical points which may be deduced from these cases are the following:—(1) The advisability of performing iridectomy for chronic glaucoma in the early stages of the disease before the apposition of the root of the iris to the cornea has resulted in adhesion. (2) It would be justifiable in some cases even to anticipate events and perform what might be termed a preventive iridectomy. Should, therefore, a patient who had already had one eye affected, present any of the premonitory symptoms in the second eye, the chances of success in an iridectomy performed at once under favourable circumstances would be infinitely greater than if it was delayed until a congestive attack ensued, the depth of the anterior chamber become still further diminished, and a peripheral adhesion of iris formed. There would in some cases no doubt be some immediate diminution in the acuity of vision due to corneal astigmatism, a defect easily remedied by glasses.

Mr. Nettleship speaking of iridectomy for chronic glaucoma, says: "The state of the pupil seems to me to furnish the best prognostic guide; in almost all of the successful cases it acted well to eserine." It can easily be understood why this should be. In an eye with adhesions of the root of the iris to the cornea the pupil would less readily contract than in one where no such adhesion was present. Atrophy of the iris tissue in glaucoma, and ectropion of the uveal pigment at the pupillary margin are usually associated. The atrophy of the iris is due to the constriction of its blood-vessels from pressure of its root against the posterior surface of the cornea. When this pressure has been of long standing adhesion takes place. Hence it may be taken that the eye having a pupil with a marked black ring to it, which will not contract well to eserine, has considerable adhesion of the root of the iris to the cornea, and is an unfavourable one upon which to perform an iridectomy for the purpose of relieving tension. A sclerotomy performed with the intention of making a permanent gap in the adherent root of the iris would be more likely to succeed. It sometimes happens that one portion of the periphery of the iris becomes adherent to the cornea sooner than another. This is rendered evident

clinically by the pupil becoming eccentric, it being drawn towards the side on which the adhesion is, also by the anterior chamber being shallower on the side of the adhesion, and by there being more marked ectropion of the uveal pigment there. It follows, therefore, that there would be more likelihood of the iris tearing away at its root, if the iridectomy was performed where there was most iris present where the anterior chamber was deepest, and where there was least ectropion of the uveal pigment, than if done in the opposite direction. (Boston Medical and Surgical Journal, December 15, 1892, p. 573.)

IRIDOPLEGIA.—Its Causes.

Uhthoff has stated that 67·6 per cent. of the cases of reflex irodoplegia are due to tabes dorsalis ; and Dr. Gower's statistics are of value in this connection (Trans. Ophth. Soc., 1883), for he has shown that in cases of tabes in the first stage, *i.e.*, before there is difficulty in walking, 84 per cent. presented intraocular palsies, indicating that these affections are not only a common but an early symptom of this disease ; and Minor (Neurol. Centralbl., 1892, p. 396) has pointed out that disappearance of the knee-jerk is by no means as early a symptom of tabes as some eye symptoms, *e.g.*, mydriasis, myosis, and the Argyll-Robertson pupil. The majority of the cases (15 cases are recorded) are to some extent confirmatory of these views, but a brief notice will be given to two other important causes of reflex pupillary immobility ; these are general paralysis of the insane and syphilis. Uhthoff has stated that the former is the cause of this condition in 85·5 per cent. of mental cases, while the latter is the cause in 8 per cent. of the cases in general and special hospitals. There was no evidence of general paralysis in the cases just narrated, with the notable exception of one case, while the possibility of syphilis as a causal factor, although no definite evidence of it was obtained in every case, ought not to be overlooked. As has been constantly pointed out, the absence of a history of syphilis in cases where the lesion is suggestive of this affection is of no value. The fact, also, that a large number of cases of tabes are due to syphilis, shows that the disease may be indirectly the cause of the reflex pupillary immobility (Gowers). (Ophthalmic Hospital Report, December, 1892, p. 339.)

MIDDLE-EAR DISEASE DUE TO TREATMENT OF THE NOSE AND THROAT.

Dr. Thomas Barr appends the following precautionary suggestion to an important paper, an abstract of which appears at page 366. (1) Patients before using the nasal syringe, Weber's douche or

the hand douche, should be carefully instructed by the surgeon in their proper and safe use; (2) previous to injecting fluids by the syringe or Weber's douche into the nose, or prescribing such, the nasal passages should be carefully examined, and if one should be found obstructed the fluid should be injected *into the obstructed passage;* (3) the nozzle of the syringe should not tightly close the nostril and during the injection of the fluid the stream should be frequently interrupted; (4) if a syringe is employed, too great force must not be used, especially if there be resistance to the flow of the fluid from one nostril to the other; if Weber's douche is employed the fall must not be too great—not more than two feet; (5) the fluid injected should always be comfortably warmed—say 80° to 90° F.—and it should hold in solution a saline, such as a one per cent. solution of common salt or bicarbonate of soda, while in ozæna or other bacterial diseases a definite antiseptic should be employed; (6) the act of swallowing must carefully be avoided during the douche; this is aided by breathing through the mouth. Eitelburg suggests that the patient should protrude the tongue so as effectually to prevent the act of swallowing; (7) in the case of infants or very young children, or in adults whose Eustachian tubes are abnormally permeable, the syringe or Weber's douche should not be employed. The liquid should in these cases be poured into the nasal passages with a spoon or other suitable appliance while the patient (if old enough) should sound the vowel "a;" (8) the patient should not blow his nose or, if possible, sneeze for at least fifteen minutes after; he should be instructed that in the event of the liquid entering the ear, he must swallow several times with the nostrils closed; (9) after operations on the nose or naso-pharynx, or the use of corrosive substances which may produce swelling or obstruction, the syringe should be avoided or used with great caution, for a few days, during which the patient should be careful to avoid exposure to cold or septic influences; (10) In operations or cauterisation great care should be taken to secure cleanliness and an aseptic condition of the instruments or appliances used. If the finger-nail is employed to scrape away vegetations there is obviously special need for precautions in these directions. (The Lancet, December 17, 1892, p. 1380.)

OTORRHŒA.—Dermatol.

S. A. Shanïavsky (*Meditzinskoïë Obozrenië*, No. 10, 1892) has used dermatol in thirty cases of acute and chronic purulent otitis, externa or media. Having washed out the ear with a 3 per cent. boracic acid lotion, he thoroughly dries the parts with absorbent cotton wool, and then introduces deep into the meatus a piece of the wool impregnated with dermatol powder. The results are very satisfactory, the anti-suppurative effect of

the substance being very marked, more especially in acute otorrhœa. In cases of otitis externa, a marked decrease in the discharge was pretty frequently noticed within three days, while a complete cure was far more quickly effected than in cases treated by iodoform, tannin, calomel, boracic acid, subnitrate of bismuth, and other ordinary drugs. In cases of otitis media, with perforation of the drum-head, however, the healing process advanced somewhat more slowly than in those of external otitis. (Epitome of the British Medical Journal, December 31, 1892, p. 108.)

OTORRHŒA WITH PERFORATION.—Treatment.

When the accumulation of pus from the meatus is cleared away and the parts kept constantly clean, a recently perforated membrane, as a rule, heals well. When there is a thick discharge it should be removed at least three times a day. Oftentimes deafness is due to deposit on the membrane, fenestræ, or ossicula, or to swelling of the mucous surface of the drumhead, and the thorough washing of the tympanum with antiseptics is of great advantage. This may in some instances be effected by the use of an intratympanic syringe introduced through the perforation; the inflation of the tympanum by Valsalva's or Politzer's method should then be resorted to. As Hinton long since observed, it is desirable sometimes to touch the edges of the perforation with silver nitrate. In the treatment of chronic cases of perforation, highly stimulating lotions are often employed month after month without any change, and the ear, in consequence, becomes excoriated and painful. The adoption of a milder application may be all that is requisite to effect a cure. The immediate relief of pain is of prime importance. To this end free leeching and counter irritation behind the mastoid, with equal parts of tincture of iodine and blistering fluid, may be employed. Cold compresses, frequently changed, may sometimes be useful, as Weber-Liel has shown, in place of leeching. Glycerine of carbolic acid poured into the meatus is a useful anodyne, and of the value of antipyrin taken internally I have already had occasion to speak. In the acute catarrh of young children—of which one sign is refusal to rest the head on the affected side—poultices should be avoided, as they only promote suppuration; pain is best relieved by frequent fomentation of the external meatus with water. Mild purgation and the use of Politzer's bag are also of assistance. Many an ear-ache might be completely prevented by timely politzerisation, as it renders the Eustachian tube pervious, and equalises the pressure on the drumhead. In children it acts well, without any accompanying act of deglutition. Until pain has subsided warm water should be poured into the ear, and syringing and the use of stimulating applications should

be shunned. Afterwards weak and soothing lotions, such as solution of acetate of lead and tincture of opium, may be resorted to. Perchloride of iron and silver nitrate are unsuitable for acute cases. Powdered boracic acid, or occasionally alum, may be very efficacious, but the insufflation of powders is not to be recommended except in chronic cases where there is a large perforation. Strong lotions are applicable only in old-standing cases of otorrhœa. The stoppage of discharge through their use when perforation has but recently occurred, or when pain is still present, may be productive of meningitis or mastoid abscess, the edges of the perforation being stimulated to close before cessation of discharge into the tympanum. In chronic cases of otorrhœa, as we have seen, rectified spirit may be of signal service. Dr. W. B. Johnson recommends hydrogen peroxide—a fifteen-volume solution is the strongest required—as a non-toxic germicide, one and a half times stronger than mercury bichloride, in catarrhal and suppurative otitis and in mastoiditis after incision. It acts by evolving nascent oxygen, and its effervescence during decomposition effects the excretion of products of healthy action. Causing the disintegration and removal of carious, and promoting the growth of living bony tissue, it obviates the necessity of scraping a diseased mastoid if applied thereto. (Mr. Field, British Medical Journal, December 10, 1892, p. 1285.)

OZÆNA.—Treatment.

The chronic purulent discharge of children commonly known as ozæna is essentially a fœtid atrophic rhinitis characterised by dilatation of the nasal cavities and widening of the nose, so as to produce in extreme cases the deformity known as "saddle nose." The tendency of the purulent discharge is to dry in the cavities of the nose, and to produce yellow or greenish crusts, which adhere finally to the atrophied mucous membrane. This is especially the case on those parts of the mucous membrane which are ulcerated, as they commonly are, but it may be questioned whether the ulcers are caused by the crusts, or *vice versâ*. The majority of sufferers from ozæna are well-marked tuberculous or syphilitic subjects, and in the latter the discharge is often kept up by necrosed bone, the presence of which can be detected with the probe through the anterior nares, or by the finger introduced into the naso-pharynx. The methodical employment of irrigation with warm detergent lotions is the first and most important detail of treatment; and I prefer the terebinthinate fluid, known as Sanitas, well diluted, for the purpose. Powerful continuous nasal douches are apt to set up mischief in the middle ear. A small nasal douche, with only a tumblerful of water, is the only admissible form of continuous douche; but a better plan

is to employ an ordinary Higginson's syringe, so that the muscles of the palate may act only when the impact of the water is made, and thus the Eustachian tube be closed. The forcible interrupted current has the further advantage of more readily dislodging the crusts. After thorough washing, the application of glycerine, in the form of glycerine of borax, with a brush, is most useful; and in bad cases may be followed up by the application of the glycerine of carbolic acid to both anterior and posterior nares. To obviate the stench which is so prominent a feature of these cases, the use of a snuff of iodol and borax (one to seven) has proved satisfactory. Residence at a bracing seaside place is advantageous to the strumous cases, and the sea-water may be advantageously tried as a douche. Cod liver oil or the syrup of the hypophosphites is also useful. In the cases of ozæna dependent on congenital syphilis, mild mercurial douching may be used, and mercurial ointments, or, better, oleates diluted, may be applied to the ulcerated surfaces. At the same time, the iodides of potassium or sodium should be administered internally in full doses. When bone is exposed and necrosed, time must be given for its complete separation; and in extensive necrosis it would be justifiable to have recourse to Rouge's operation. (Mr. Christopher Heath's Bradshaw Lecture, British Medical Journal, December 10, 1892, p. 1283.)

Ozæna.

Ozæna is commonly caused by atrophic rhinitis with an accumulation of crusts. A most important cause of this symptom in children is the presence of a foreign body; when a child has a purulent and offensive discharge, from one nostril only, it is a suspicious sign that in that side of the nose there is a foreign body. Here, for instance, is a shoe button which I removed from a child's nose, where it had remained unsuspected for two years. To examine such a case necessitated anæsthesia. This child was put under A. C. E. mixture, and its nose carefully cleansed with syringes and cotton wool. I then saw and felt the foreign body lying in the inferior meatus of the nose, surrounded by discharge and crusts. The question then arose whether I should push it back into the pharynx. If this is done one must be careful that it does not drop into the larynx. But here it was easy to insert a tiny hook in the eye of the button and thus remove it. Peas, beans, glass beads, pebbles, and an extracted tooth are among the foreign bodies we may expect to meet with in the nose of children. Severe cases of facial neuralgia have been cured by removal of foreign bodies from the nasal cavities of adults. (Mr. Marmaduke Sheild, The Practitioner, April, 1893, p. 246.)

[See also article at p. 377 of this volume of *Retrospect.*]

RETINAL AFFECTIONS IN DIABETES.

After a brief historical introduction, Dr. Saundby in his Middlemore Lectures described the retinal affections of diabetes in accordance with Hirschberg's recent classification: (1) Retinitis centralis punctata diabetica, in which there is a characteristic inflammation of the central portion of the retina, giving rise to the appearance of bright spots often coalescing and frequently accompanied by hemorrhages; (2) retinitis hemorrhagica diabetica, in which the essential process is hemorrhage followed by inflammatory and degenerative changes; (3) mixed cases. The disease in all its forms occurs only in persons of middle or advanced life and in cases of diabetes of some standing. It is generally bilateral and causes disturbance of vision, the patients complaining of a mist before their eyes. In the first form the ophthalmoscope reveals groups of small, clear, bright specks situated in the structure of the retina, in and around the disc, occurring on the nasal as well as the temporal side, never radiated in arrangement, but often occupying large areas; never pigmented, but accompanied by fine punctiform hemorrhages. It is never attended by optic papillitis or diffuse retinitis. Newly formed blood-vessels have been observed and there is a decided tendeney to the occurrence of large hemorrhages into the vitreous. This description was illustrated by a case and the fundus oculi shown by means of Mr. Priestley Smith's demonstrating ophthalmoscope. The pathology of the affection was held to be dependent on the diabetic dyscrasia which leads to nutritive changes in the walls of the vessels and to the effusion of albuminous material into and between the layers of the retina. In the second form the hemorrhages are usually punctiform but may be striated and are situated all over the retina; their source is not the superficial retinal vessels and their rounded shape indicates that they are situated below the nerve fibre layer. There may be haziness of the retina, dependent on some degree of œdema. The hemorrhages are due to vascular degeneration caused doubtless by the dyscrasia, but the histological details have not been worked out. The course of both is progressive and no instance of recovery has been recorded, although temporary improvement in vision occasionally takes place. The first form is highly characteristic when well marked, but the diagnosis should always be confirmed by examining the urine. (The Lancet, Dec. 24, 1892, p. 1431.)

SYMPATHETIC OPHTHALMIA.—Mode of Transmission and Treatment.

That sympathetic ophthalmia is not transmitted from one eye to its fellow by any single route is pretty certain. This is proved

by daily experience. For instance, if sympathetic inflammations extended along the optic nerve always, then resection of this nerve ought to prevent sympathetic ophthalmia. But that it does not afford such protection, even when the ciliary nerves are resected at the same time, is shown by Leber's reported case, to begin with, and others since. Not only has sympathetic inflammation followed resection of the optic nerve, but even death. That the ciliary nerves are not the only way of transmission of sympathetic ophthalmia, is not only proved by the above case of Leber's, but is shown by the fact that where resection of the ciliary nerves alone is done, sympathetic inflammation has followed. Snellen suggests that it might travel along the lymphatics accompanying the ciliary nerves, Nettleship thinks that it might be transmitted by the fifth nerve. His opinion for this is based on the fact that in a case of "distinctive sympathetic inflammation" which came under his care, the eyelashes of the sympathising eye became white, while those of the exciting eye were not altered. Alt suggests "that the entire nervous apparatus of an eye has the power of transmission; and even the sympathetic system must not be left out of view in this consideration." Sympathetic ophthalmia may, we think, be transmitted by anyone or by all of these ways combined. The important question arises, how to prevent it? Of all methods of treatment yet devised for its prevention, the best and only efficient one is enucleation of the offending eye. All the substitutes for enucleation have so far proven failures, and of so little value that they are seldom practised. Evisceration, which at one time was proclaimed as a prophylactic against sympathetic inflammation, and was somewhat extensively practised in Germany and England, has proved of less value than enucleation, and in this country, at least, is resorted to but rarely. Optico-ciliary neurectomy is, next to enucleation, the best remedy for sympathetic affections. But none of them compare with excision, and even this fails at times to cure a sympathetic irritation or check sympathetic ophthalmia, especially if it is at all advanced. Moreover, sympathetic ophthalmia sometimes follows enucleation, though no sympathetic symptoms existed at the time of the enucleation. Two such cases are reported in this paper, and Nettleship has reported nine such cases. It is possible that a very thorough examination, made before the enucleations were performed, would have shown that sympathetic inflammation of an insidious variety then existed. At any rate, we may promise a patient that enucleation is almost, although not quite, an absolute prevention of sympathetic inflammation, if it does not exist when the operation is performed. (Dr. E. S. Davis, New York Medical Record, October 15, 1892, p. 447.)

SYPHILITIC AFFECTIONS.

GONORRHŒA ASCENDENS IN WOMEN.

Wertheim seeks to throw light on the question of the mode of occurrence of peritonitis following gonorrhœal affections. He refers to the presence of the gonococcus in the contents of the tubes, and shows that the former idea that the gonococcus would not affect pavement epithelium is not tenable. It has been found even in the knee-joint. The theory has been advanced that with the gonococcus other pyogenic micro-organisms are found, which are really the cause of the peritonitis. To help in deciding some of these doubtful points, the author instituted a series of experiments on animals. He first describes in detail his method of obtaining pure cultures of the gonococcus, which he was able to effect even when the pus was taken from the female genitals mixed with other forms of bacteria. By direct inoculation of these cultures upon the male uretha, in five cases was true gonorrhœa produced. He gives further several points as to the biology of the gonococcus Neisser which should be studied in the original. To determine the presence of the gonococcus in the contents of tubes the subject of gonorrhœal salpingitis, he considers the method by culture easier and more sure than by the microscope. A second series of experiments by inoculating the peritoneum of animals showed that the gonococcus does actually cause an inflammation of that membrane which is in certain animals purely local, and in none causes death, in this respect showing a marked distinction from the staphylococcus, and streptococcus pyogenes. He explains the failure of observers to find the gonococcus on the ground of faulty observations and methods. First, the cases must be fresh, which are difficult to obtain, then the method of preparing and staining must be very exact. He has succeeded in demonstrating their presence in the peritoneal cavity, and claims that the infection may occur from the escape of pus from the ostium abdominale of the tube, or directly through the walls of the tube itself. Finally, in two cases he was able to demonstrate the presence of gonococci in the pus of ovarian abscesses which had no connection with the tubes, and also in the ovarian tissue itself, proving to his mind that these bacteria could invade solid tissue. (Boston Medical and Surgical Journal, October 13, 1892, p. 360.)

GONORRHŒA.—Salol in.

G. N. Grivtzoff, of Sebastopol (*Meditz. Pribavl. k' Morsk. Sborniku*, No. 9, 1892), obtains excellent results in gonorrhœa by the internal administration of salol in the dose of 1.5 gramme (in

powder, with a few drops of peppermint oil to improve the flavour) three or four times a day. The effects are particularly good in acute and subacute cases. Patients who come under observation within the first four days of the affection may be cured by salol alone in from ten to fourteen days. It is advisable, however, to use simultaneously warm general baths which accelerate the disappearance of dysuria and painful erections. In subacute forms it is sometimes useful to combine salol with cubebs. In more or less neglected cases salol should be employed in the shape of injections as well (℞ Salol. puri, ten grammes ; gummi Arabici, 5.0 ; aq. dest., 2,000.0. M. Ft. emulsio. To be injected into the urethra three or four times daily). No disagreeable effects whatever were observed. (Epitome of the British Medical Journal, December 31, 1892, p. 108.)

SYPHILIS.—The Infectious nature of Tertiary Lesions in.

Judging from the analogies afforded by other infectious febrile disorders, and from pathological observation, it may be assumed that the syphilitic virus accumulates, not only in the primary sore and indurated glands, but also in all the secondary lesions, including those of the skin and mucous membranes and in the localised growths of the tertiary stage, and that equally from all of these successful inoculations might be made. It may be assumed also that during the secondary stage, when the virus is being distributed by the blood, this fluid and tissues which are not liable to be, or are not, the seats of specific implication are also infective, though, for obvious reasons, much less potently and much less certainly infective than are the parts wherein the virus has taken root and is growing. During the primary stage, however, and during the period of quiescence which often separates the secondary from the tertiary stage and even during the continuance of tertiary symptoms, the blood and tissues not specifically affected probably remain innocuous. It is of course indisputable that, during its primary and secondary stages, syphilis is virulently contagious ; and the explanation is obvious. But it is, I believe, largely held that syphilis in the tertiary form is not contagious. This I cannot admit. I am free to acknowledge that syphilis in this period of its career is far less frequently communicated than it is at any other stage ; but this is due to the fact that the specific lesions are at this time, as in the first stage, localised, and for the most part so localised (often in internal organs) as to afford little if any opportunity for successful inoculation. (Dr. Bristowe's Lettsomian Lectures, The Lancet, January 14, 1893, p. 72.)

OBSTETRICS AND GYNÆCOLOGY.

CANCER OF UTERUS.—Vaginal Hysterectomy for.

At the American Gynæcological Society, on September 20, 1892, Dr. Hermann J. Boldt, of New York, read a paper on this subject. He said that the technique was fully as important as the question of the indication for the operation. This was apparent when the rate of mortality at the present time was compared with that of ten years ago. As for methods of operating, the author did not confine himself to any one plan, but depended chiefly upon asepsis as one of the most important factors in the ultimate good result. One of the reasons why total extirpation should be employed in preference to high amputation with the knife or actual cautery was that a number of cases had been reported in which, although malignant disease of the cervix or vagina alone had been apparent before the operation, yet after removal of the uterus its body was found the seat of malignant changes, but with a band of perfectly healthy tissue separating the corporeal cancerous tissue from that below. One could not, then, be sure, on removing only a part of the uterus, of having extirpated the entire malignant growth, however limited it might seem to be. The total number of the speaker's cases of vaginal hysterectomy was forty-four, with but three deaths. These three patients had had independent carcinomatous nodules in the body of the uterus. The operations had been done for cancer of the cervix. On cutting into the uterus after its removal, the corporeal disease was discovered. In regard to some points in the operation as practiced by the speaker, ligatures were preferred to clamps in cases where a choice was possible, as the leaving of a perfectly closed wound was the ideal operation. Clamps, then, were only used where they were absolutely necessary or were advantageous in expediting matters. Catgut was to be preferred to other materials for sutures. Experience has taught the lesson that the operation in certain advanced cases was to be condemned, where it had formerly been recommended. In such cases the patients' lives were likely to be cut shorter or rendered even more miserable. In regard to recurrence, it was the author's opinion that malignant disease affecting the corpus uteri or the upper part of the cervical canal admitted of a more favourable prognosis than cancer of the vaginal portion of the cervix. In considering the points in diagnosis, in limiting the operation from a clinical standpoint, the author wished to place himself on record as discarding the terms upper and lower line of limitation for total extirpation for cancer. For him there was only one line, no matter how early the disease or how limited it might appear; if he were given a choice of operation, it would be

complete removal of the organ. Statistics showed that from the thirty-sixth to the sixtieth years carcinoma of the uterus was most prevalent. An examination of the reports of various life-insurance companies showed an average mortality of 5·5 per cent. from cancer of the uterus in women. The number of patients surviving the operation for removal, without recurrence after two years, had been sufficiently large to place vaginal hysterectomy for cancer on the list of necessary operations for the prolongation of life. Recent reports had been regarded by the author as rather favourable for total extirpation, and he had not been convinced by the president's address that this treatment should be abandoned for the electro cautery. (New York Medical Journal, November 26, 1892, p. 610.)

CARCINOMA OF THE CERVIX UTERI.—Supra-vaginal amputation for.

Mr. Bowreman Jessett tabulates twenty-five cases of carcinoma of the cervix uteri in which he has performed supra-vaginal amputation, and makes the following remarks:—I am quite in accord with Drs. John Williams, Schroeder and Hofmeier, whose statistics go conclusively to show that when carcinoma of the uterus is seen early and the disease is limited to the vaginal portion of the organ, supra-vaginal amputation is all that is necessary and it is useless to put the patient to the extra risk of total extirpation. It may be well here to define my meaning of supra-vaginal amputation as applied in this paper. It is not only the amputation through the cervix, by which operation the neck of the uterus is removed, but also the removing at the same time a large cone-shaped piece from the fundus of the uterus, which cone may if necessary be extended to the fundus. Gusserow gives the mortality after supra-vaginal amputation when performed with the knife at 9·09 per cent., and with the galvanic cautery at 7·75 per cent. Dr. Post, in the *American Journal of Obstetrics*, November, 1887, in 700 cases of vaginal hysterectomy he had collected, gives the mortality at 24 per cent. Since that time no doubt the methods adopted for this latter operation are much improved, but even Professor Martin (Berlin) gives his mortality at 16·6 per cent.; while, on the other hand, Leopold and Scenger give their mortality as low as 6·2 and 8·3 per cent. respectively. There can be no doubt, however, that the deaths after supra-vaginal amputation are considerably less than after total extirpation, and I think I have shown that the results obtained are such as to warrant us in advising the former operation in preference to vaginal hysterectomy. A few words as to the class of cases in which the supra-vaginal operation of the cervix is applicable. They may be summarised

by saying that, in my opinion, if a case of carcinoma of the uterus, in which the disease is limited to the vaginal portion of the viscus and the fundus is free, the uterus being movable and the vaginal not implicated, such a case is one suitable for the high operation. By this operation I mean that a good-sized conical piece should be removed above the disease. In those cases in which the fundus is implicated, but the uterus is freely movable, I agree with Martin of Berlin and Skene of Brooklyn that nothing short of total extirpation of the entire organ is likely to be of any service in those cases. (The Lancet, December 24, 1892, p. 1432.)

CHLOROFORM IN THE COURSE OF NORMAL LABOUR.

As a result of studies with the tocodynamometer, Doenhoff (*Archiv für Gynäkol.*, Bd. xlii, H. 2, p. 305) has found that chloroform when given to a degree productive of slight narcosis exerts a paralyzant influence upon uterine contraction. If the narcosis be continued, the sum-total of the force of the contractions progressively diminishes. In slight narcosis the activity of the contractions, as well as the duration of the intermissions and the strength of the pains, becomes irregular. In profound narcosis the intermissions are equally long, and the pains equally feeble. At the conclusion of the narcosis the pains again become more active. The sum-total of the force of the pains immediately after narcosis bears a relation of 2 to 3 to that preceding the narcosis. After narcosis the activity of the pains remains for a considerable time slighter than before narcosis. If previously exerted moderately, the action of the abdominal muscles ceases early during slight narcosis. Soon after narcosis it returns with corresponding force. During the narcosis the abdominal muscles are inert; even after the period of dilatation, if abdominal contractions have been active, they continue after partial narcosis, but with less frequency and in less degree; they cease entirely during profound narcosis. The intermissions become longer early in slight narcosis, and the number of pains smaller. (Medical News, September 24, 1892, p. 353.)

CHOREA GRAVIDARUM.

Riche concludes, in his thesis in this subject, that although this affection is very rare, the etiological influence of pregnancy in the production of chorea is incontestable. It is seen to occur in the course of pregnancy in women at other times unaffected, to recur only in successive pregnancies in the same persons, and to get well before delivery. Riche believes that the prognostic importance of the affection has been much exaggerated. He

thinks the administration of chloral in large doses is an efficient means of treatment. (Boston Medical and Surgical Journal, September 1, 1892, p. 215.)

ENDOMETRITIS.—Diagnosis of, by the Hot Douche.

Puech, of Montpellier (*Arch. de Tocol. et de Gynec.*, August, 1892), observes that Trélat has summed up the essential clinical features of endometritis as blood, glairy mucus, and pain. When these three features are present together, inflammation of the uterine mucous membrane may safely be diagnosed. However, this is not always the case. The secretion itself is characteristic, yet the secretion is sometimes very scanty at any given moment. Schultze's method for diagnosis consists in leaving a tampon soaked in a tannin-glycerine solution (20 to 25 per cent.) pressed against the uterus for twenty-four hours or longer. At the end of that time, if the uterus be healthy, a small clot of pure mucus will be found on the tampon. If unhealthy, the tampon will be covered with pus. Grynfeldt, of Montpellier, has for long employed a simpler method. When a jet of hot water is played against the cervix, it turns pale, owing to anæmia from contraction of the uterine muscular tissue. That contraction also expels from the cavity of the womb the pathological products of chronic endometritis, a muco-purulent secretion. It escapes freely when the douche is discontinued. This test is very easy and sure; it also serves to prove whether the case be really cured after treatment. (Epitome of the British Medical Journal, Oct. 29, 1892, p. 71.)

FIBROMYOMA OF THE UTERUS.—Removal of the Ovaries for.

How far can you recommend removal of the ovaries for the cure of fibromyoma uteri? is a question I am often asked, and I feel warranted, from my own experience and from what I have seen of the work of others in this operation, in replying: I believe you can depend upon a certain cure if you can completely and cleanly remove every bit of ovarian tissue; if you cannot then I think you had better leave it alone, because small portions of ovarian tissue remaining on the proximal side of your ligatures will very likely keep up congestion and hemorrhage, and entirely nullify the operation. If you can thoroughly remove the ovaries then you will certainly cure your patient in a number of months, or it may be years, varying as much as the variations seen in the natural cures at the menopause. In the majority of my cases the cure has been not only rapid but complete, in some very slow, and accompanied by occasional troublesome hemorrhage,

but in every case where there has been no fresh interference and some reasonable patience the cure has come. The one exception which rather proves the rule is that of a lady now past the age of natural menopause, who still has her tumour, not a large one, but little altered since I operated many years ago. I stopped its growth and her menstruation, but it did not go away; this is, however, an exceptional case in other ways, because I operated for the removal of the second ovary and the cure of the fibroid some years after another surgeon had very imperfectly removed an ovarian tumour from the other side, and, though I tried to remove his remains, I could not feel confident that I had done so. Then I am not sure how far the doing of the operation in two sections, and with an interval, may have affected the result. Still, even this is not a failure, for the tumour was growing rapidly and ceased to grow, and, though the change is small, still it is in the right direction of diminution. The mortality of the operation in my hands has been just over 4 per cent., and has, I believe, been entirely due to the accidental puncture of large vessels in the pedicles, with subsequent thrombosis or embolism. When this accident happens—and happen it will occasionally, however careful you are—I believe the ligatures should be withdrawn, and a fresh transfixion made on the proximal side of the first, that is, if there is room to get a second puncture in this way. The risk of this accident is much lessened, and the firm and satisfactory hold of the ligatures much increased, if transfixion be made through the utero-ovarian ligament, but in some few cases this is impracticable in consequence of the way it gets thinned and spread out over the tumour. To what class of tumours is this operation most applicable? Undoubtedly to those general enlargements of one or other uterine wall, which form a smooth, rather oval, tumour, pretty central in its position, and varying in size from a fœtal to an adult head. I have, however, operated successfully for much larger and more complex masses, and I have also got excellent results in cases of multiple subperitoneal and intramural tumours, still confined practically to the cavity of the true pelvis. (Mr. Knowsley Thornton, British Medical Journal, February 11, 1893, p. 283.)

[See also articles by Mr. J. Knowsley Thornton, at pp. 410 and 413 of this volume of the *Retrospect.*]

INTRA-UTERINE INJECTIONS OF GLYCERINE TO PROMOTE THE PAINS OF LABOUR.

Pelzer (in the *Archiv für Gynäkologie*, Band xlii, Heft 2) reports four cases of lingering labour in which intra-uterine injections of glycerine were employed to increase the vigour of uterine

contractions. A suitable syringe is filled with glycerine and connected by a rubber tube with an intra-uterine catheter. Air is carefully expelled from the catheter, which is then introduced as far as possible upon the posterior wall of the uterus, and within the os and cervix. Several ounces of glycerine are injected; to prevent its speedy expulsion, the patient is put upon the side in Sims's position, or in the knee-chest position. (The American Journal of the Medical Sciences, February, 1893, p. 216.)

POST-PARTUM HEMORRHAGE.—Prevention.

Nature prevents *post-partum* hemorrhage by the retraction and contraction of the uterus, always present when the child is naturally born, and persisting after delivery. The surest way to produce *post-partum* hemorrhage is to drag out the child or the placenta at a time when contraction is absent. A method of hastening delivery—forceps, breech, or foot traction—should only assist the action of the uterus, never replace it. In any case of delay in delivery, accurate diagnosis of the cause of delay is essential for the safe management of the labour. If this cause be mechanical obstruction with tonic contraction of the uterus, or if labour is lingering because the pains, although regular, are weak, in these cases it is good practice to help delivery by pulling. Uterine contractions not strong enough to expel the child within the usual limit of time, may be quite strong enough to expel the placenta and compress the uterine veins. But if the delay is due to cessation of pains, the condition to which Dr. Braxton Hicks has given the name of "temporary passiveness," and Scanzoni that of "secondary uterine inertia," extraction of the child during this condition is almost certain to be followed by hemorrhage, because uterine retraction and contraction are absent. In this condition there can be no necessity for hasty delivery, for damage from pressure cannot happen while the uterus is inactive. This principle is most important in cases of placenta prævia and accidental hemorrhage, for here pains are often absent. In these grave conditions the patient is not safe till she has been delivered. From this sound proposition too often is deduced the maxim for conduct, "deliver as quickly as possible," the results of which are often disastrous. Because the patient is not safe till she is delivered, it does not follow that she is safe when she has been delivered. Delivery, in *ante-partum* hemorrhage, is a means to an end, the end being the procuring of uterine contractions. If this end be not attained the patient's state after delivery is worse than it was before; for while the child is *in utero* it is possible, by means of the binder, or, in placenta prævia, by bringing down the half

breech into the os, to get some pressure on the bleeding part while we wait for uterine contraction. The right line of treatment is first get uterine contraction, then deliver. I make no apology for what may seem a digression, for some of the worst cases of *post-partum* hemorrhage that I have seen are those which have followed hasty delivery in *ante-partum* hemorrhage. The principle not to deliver in the absence of uterine contraction is the first point in the prevention of *post-partum* hemorrhage. Pulling away the placenta without waiting for uterine contraction is so well known to be dangerous that I need not say more about this. I am not sure that the importance of giving time for the proper detachment of the membranes, and of looking at them to see that the whole of the chorion has come away is so general as it should be. If the placenta is squeezed or pulled out before the membranes are separated, a bit of chorion may be stripped off the amnion instead of off the uterus, and so be retained and afterwards cause hemorrhage. However natural the delivery of the placenta and membranes, it is important to see that the whole of the chorion is removed. There may be a placenta succenturiata, and, if so, this can be ascertained by the gap in the chorion, but in no other way, except by the hand in the uterus. If due time is given for the natural separation and expulsion of the placenta and membranes from the uterus, it matters very little whether the placenta is pushed out of the vagina by pressure from above or pulled out by the cord. The advantage of the Dublin or Credé's method of delivering the placenta from the vagina is that it ensures the prompt discovery and treatment of failure of uterine action. These two points: care not to extract child or placenta when the uterus is not contracting, and close supervision of the third stage of labour, are the chief precautions for the prevention of hemorrhage. (Mr. Herman, British Medical Journal, December 24, 1892, p. 1377.)

[See also article by Mr. Herman "On the treatment of Post-Partum Hemorrhage," at p. 398 of this volume of the *Retrospect.*]

Post-partum Hemorrhage.—Treatment of.

In the discussion on this subject at the British Medical Association, 1892, Dr. Horrocks said that it was difficult to separate the management of the third stage of labour from the actual treatment of *post-partum* hemorrhage. He considered it a bad practice to attempt to "express" the placenta from the uterus as soon as possible after the birth of the child. So long as everything was natural, and therefore little or no loss of blood going on, why not leave well alone? Nature was capable of managing her own affairs perfectly well in above 90 per cent. of cases, and she generally gave a little rest or interval between

the birth of the child and the birth of the placenta. During this interval important changes took place—clotting, thrombosis, &c.—which had for their object the prevention of hemorrhage. Hence it was best to wait in all natural cases for at least fifteen to twenty minutes before attempting to expel the placenta by expression. Active uterine contraction was not necessary in order to stop hemorrhage. In a normal case after the placenta was expelled the uterus was found now hard and well defined like a cricket ball when it was in a state of active contraction, and now soft and ill-defined, and apparently larger, when it was in a state of relaxation. These two conditions alternated like the beat of the heart, the active state being the systole, and the passive the diastole. This condition of relaxation without extension was known as retraction of the uterus, and was most important in the natural prevention of hemorrhage. It was very important clearly to understand that no muscular fibre, after contracting, could, of its own accord, extend itself again. He had proved this by experiment. Hence, when the uterus had contracted so much as to expel the placenta, its fibres were as short as they could contract down to, and when the active contraction passed off they did not lengthen but remained short, though relaxed. He compared it to the masseter muscle when the jaws were closed ; the fibres of that muscle could be contracted actively, though in this case they did not become shorter, or they could be relaxed, the teeth being held close together all the time by the hand pressing on the lower jaw. Some accoucheurs who were unaware of this fact were greatly alarmed, on feeling for the uterus through the abdominal wall, when they could not find the cricket-ball-like mass ; but so long as there was no hemorrhage they need fear nothing, even though they could not define the outlines of the uterus. After a time it would actively contract and assume the more spherical and more defined shape, and get harder so as to be easily felt. When, however, there was hemorrhage after the birth of the child, the very first thing to be done was to grasp the uterus through the abdominal wall and squeeze it so as to diminish the size of its cavity. This would not only directly compress bleeding points, but would tend to detach and expel the placenta, shorten the uterine fibres, and promote active contraction and the important condition of retraction. The child should be quickly separated, and if hemorrhage continued in spite of uterine kneading, then without delay, the fingers, or as much of the hand as was necessary, should be passed carefully and gently into the uterus, and the placenta peeled off wherever attached. It would then be an easy matter to "express" it, and this was better than pulling on it. Ergot should be given in big doses. If hemorrhage continued, or if it began after the delivery of the placenta,

the uterus should be immediately grasped and kneaded, and ergot should be given if this had not already been done. The hand should be passed into the uterus as far as was necessary in order to remove any piece of placenta, membrane, or clot, and if bleeding still continued, hot water at a temperature of 115° to 120° F., should be injected into the uterine cavity. In very few instances did this fail; when it did a solution of perchloride of iron might be used; but in the Guy's Lying-in-Charity they had not had occasion to resort to iron for years. With regard to plugging the uterus he considered it bad treatment and quite contrary to the principles of natural hæmostatics. Any plug, however small, tended to stretch the shortened fibres, and so to open up the sinuses, and to cause further hemorrhage. Of course he was referring to what was ordinarily understood by *post-partum* hemorrhage, and not to hemorrhage from lacerations, where plugging might be of use. Finally, he expressed the opinion that in very rare cases patients would bleed to death in spite of the very best treatment at present known, even when efficiently carried out by competent hands. (British Medical Journal, December 24, 1892, p. 1381.)

PUERPERAL ECLAMPSIA.—Pathology and Prognosis of.

In the *Archiv für Gynäkologie*, 1892, Band xlii, Heft 3, Dührssen wrote upon the treatment of eclampsia, basing his recommendations upon the study of some two hundred cases. In the same journal, Band xliii, Heft 1, he describes these cases in detail, and draws some interesting conclusions from them. He regards the cause of eclampsia to be an intoxication of the blood occasioned by the retention of creatin and creatinin in the kidneys of the pregnant patient; less frequently by an actual nephritis accompanied by congestion of the kidneys, by accumulation of urine through pressure upon the ureters, and by hydro-nephrosis. The creatin and creatinin accumulate in the vessels of the cerebral cortex, producing convulsions by their irritation, and coma. The immediate cause of an outbreak of eclampsia is irritation of sensory nerves in the genital tract, or profound disturbance of the emotional centres. Eclampsia can also be produced by the products of bacteria, and especially when the kidneys are in a congested condition; in other cases, when infective material or bacteria cause extensive disintegration of the red blood-corpuscles, with fatty degeneration of the kidneys, heart muscle, and mucous membrane of the stomach. In the latter cases, fatal gastric hemorrhage may occur during eclampsia. Prolonged narcosis favours such degenerative changes. In a few cases eclampsia is purely reflex, and is occasioned by

abnormal distension of the uterus, or any other violent irritation of the nerves of the genital tract. General susceptibility to nervous impulses may be also a cause, as is seen in very young or very old primiparæ. In an analogous way, the engorgement of the kidneys, producing what is known as the "kidney of pregnancy," results from a reflex contraction of the renal vessels, occasioned by irritation of the genital region. The prognosis of eclampsia becomes grave in proportion to the number of convulsions; death may occur after but few convulsions from disintegration of the blood, cerebral hemorrhage, or fatty embolism. In 93·75 per cent. eclampsia ceases after the uterus has been emptied in profound narcosis. Mortality from eclampsia is less after operative emptying of the uterus than after spontaneous labour. The mortality of eclampsia will become still less if operative measures are instituted as soon as the attacks begin. Such should be the treatment at every period of pregnancy. In 80 per cent. of cases of eclampsia, the methods of incisions into the cervix and incisions into the peritoneum and vulva will enable the operator to terminate labour promptly. In 10 per cent. mechanical dilatation by traction upon a kolpeurynter, inserted within the uterus, and accompanied by dilatation by incision will result favourably. Under strict antiseptic precautions the method described, accompanied by the use of the uterine tampon in cases of atony, is no more dangerous than spontaneous labour. Cæsarean section is not indicated for eclampsia. Operative procedures increase the danger in eclamptic cases only when the narcosis is not a deep one. Prolonged narcosis to control convulsions is dangerous, as it favours the occurrence of broncho-pneumonia, increases the disintegration of red blood-corpuscles and the fatty degeneration of vital organs. In eclampsia, where the uterus is greatly distended, death sometimes follows the inhalation of a small amount of chloroform. In these cases, the membranes should be ruptured before the beginning of the narcosis. Chloral, when given internally, becomes chloroform in the blood, and the use of chloral occasions the same dangers that accompany chloroform. Large doses of morphine are also dangerous because of the fatty degeneration of the heart muscle which exists in these cases. Under the operative treatment of eclampsia the maternal mortality should lessen to 25 per cent., and that of viable children to 50 per cent. (The American Journal of the Medical Sciences, January, 1893, p. 103.)

Puerperal Eclampsia.

Goldberg, of Dresden (*Archiv für Gynäkologie*, Band xli, Heft 3, and Band xli, Heft 1), draws interesting conclusions from eighty-one cases of eclampsia. Although more frequent in

primigravidæ, the mortality is much greater in those who have borne children. Eclampsia beginning in pregnancy is most fatal; least so when it commences in the puerperal state. Profound disturbance of the nervous system is a more unfavourable symptom than the albuminuria, dyspnœa, cyanosis, and bad pulse. The most successful treatment is speedy delivery. The forceps is especially successful for mother and child. Version and extraction were also successful. Craniotomy was less valuable as a means of treatment. Cæsarean section was followed by septic peritonitis and death. Induction of labour was successful, as was also incision of a rigid os and extraction. Hot baths and packs, chloroform, chloral, and morphine were reliable agents. Large doses of morphine should be avoided, as collapse sometimes follows their use. (The American Journal of the Medical Sciences, August, 1892, p. 239.)

PUERPERAL SEPTICÆMIA.—Treatment of.

In the course of an important debate on this subject at the Glasgow Medico-Chirurgical Society, on February 3, 1893, Dr. Halliday Croom said:—In presence of a well marked case of puerperal fever, one was often practically helpless, so that one's energies should be directed in the way of prevention. The wonderful diminution in the number of cases of puerperal fever was due to the introduction of antiseptics. In proof of this, Dr. Croom quoted from statistics published for Paris, Copenhagen, and Prague, and also referred to the experience of his own service in the Maternity Hospital in Edinburgh, where antiseptics had been at one time carried to the extent of delivering under the spray. After the introduction of antiseptics, he had had six years without a single septic death. In the larger hospitals there were always occurring little septic attacks, but the genuine wound-fever had almost disappeared. Another influence in the prevention of puerperal fever he considered to be the forceps. Delayed labour was one cause of puerperal fever. His rule, in hospital as well as private practice, was to allow no multipara to be in the second stage for more than three hours, and no primipara longer than four hours. He supposed he used forceps in over 70 per cent. of his cases. Supposing sepsis to have begun, there were one or two points which would be even then found useful in treatment. If sapræmia were taking place from retained membranes which had become septic, antisepticism might here also do wonders. The patient's temperature and pulse might have risen, and the abdomen become tender, but if one, with or without dilatation, washed out the uterine cavity with antiseptic fluid, the result would be very striking. In America, and on the Continent, some thought the curette an important addition to the treatment for retained membranes

(even at full term), but he had not himself, while using it after abortion, employed it in such circumstances. The rule of those who advocated it was to wash out the vagina, and, if that were not sufficient, to wash out the uterus, and if even that failed to bring about improvement, to curette. Dr. Croom's feeling was that their hope as obstetricians lay in the use of antiseptics, and, secondly, in the early and careful use of the forceps. (The Glasgow Medical Journal, April, 1893, p. 283.)

RETROFLEXION OF THE UTERUS.—Duhrssen's Operation for.

Dührssen (*Centralblatt für Gynäkologie*, 1892, No. 47) reports 130 operations (on 113 patients) for retroflexion of the uterus, with a permanent cure in 89·4 per cent. of the cases. In two-thirds of this number the organ was adherent, and the condition was complicated with prolapsed and adherent ovaries. Three of the patients were pregnant at the time of the report, and one had been delivered prematurely. The following is the writer's mode of procedure: Adhesions are previously separated by Schultze's method. The vagina is thoroughly disinfected with a one per cent. solution of lysol, the operation being conducted under constant irrigation with a weaker solution of the same. A Sims's speculum is introduced, the anterior lip of the cervix is drawn down with bullet-forceps, and the uterine cavity is thoroughly curetted and irrigated with lysol. A sound is introduced into the bladder, and the viscus is pressed upward and forward by an assistant on the right. At the same time, the cervix is drawn downward, the usual incision is made in the anterior fornix, and the bladder is separated with the finger, up to the insertion of the peritoneum, as in vaginal hysterectomy. Another sound is then introduced into the uterus, and the organ is strongly anteverted by an assistant on the left, until it comes in contact with the left index finger of the operator, which has been kept in the wound. The surgeon now transfixes the fundus with a curved needle, carrying a silk ligature, passed transversly; this ligature being only temporary is not tied, but the ends are held by the assistant on the right. From two to four provisional ligatures are thus inserted, each at a little higher level than the preceding one. Traction upon these serves to depress the fundus uteri still more, so that the surgeon can now insert three permanent silk sutures in a direction parallel with the axis of the vagina; these include the edges of the vaginal wound—but *not* the mucous membrane—and the muscular tissue at the fundus, and are tied, cut short, and buried. The temporary ligatures are then withdrawn, and the vaginal wound is closed with a continuous catgut suture. The sound is removed from the

uterus, the uterine cavity is again irrigated, and the vagina is tamponed with iodoform gauze. The operation requires about ten minutes for its performance, and has never been followed by either severe pain or any bad results in the hands of the writer. The patient is kept in bed for eight days, but is not allowed to resume her ordinary occupation for some weeks. Occasional vesicle irritation and menorrhagia of a transient character were the only disturbances which were noted in a few instances; in one case the sutures were discharged through the bladder. The mortality was nil, and in one case only was there slight septic trouble, due to the fact that bystanders were permitted to examine the patient immediately after the operation. The writer regards his method as a decided improvement upon Schücking's, in which there is great danger of injuring the bladder and even the ureter, as shown by Glaeser; moreover, the suture within the uterine cavity may cause endometritis. Schücking's operation is followed by considerable pain, and the patient cannot dispense with a pessary, which is not required with Dührssen's method. (The American Journal of the Medical Sciences, March, 1893, p. 344.)

RUPTURE OF THE UTERUS, NON-PENETRATING.

Kupferberg (*Münchener med. Wochenschrift*, 1892, No. 50) describes the case of a multipara who had had transverse presentation in one labour terminated by version and extraction. Her pelvis was normal in dimensions, the contraction ring was not discernible, and the general condition of the patient was good. There was no evidence of threatened uterine rupture, and accordingly under anæsthesia version was performed. The extraction of the child was easy, although the child was found to be dead, having probably perished several hours previous. The uterus contracted well, and was drawn somewhat to the right side. Twelve hours after labour, assistance was summoned on account of the pain experienced by the patient, and failure in the discharge of the lochia. On examination, a sensitive area was found in the left hypogastrium, the lochial secretion being absent. On examining the uterus, it was found drawn over toward the right; on the left side, extending from the os uteri, was a tear in the neck of the uterus an inch and a half long, through which two fingers could be introduced into the pelvis and carried to the anterior superior spine. The hand placed opposite recognised the fingers through the abdominal wall. The mesentery and intestines could not be felt through the laceration. A vaginal douche of $\frac{1}{2}$ per cent. salicylic acid was cautiously given, a broad bandage pinned firmly around the abdomen, and twenty drops of tincture of opium were given,

and the patient was brought into the hospital. The patient's recovery was uneventful, and occupied two weeks. When she was discharged, the uterus had undergone good involution, and was drawn somewhat toward the left side. A second case was that of a rhachitic woman pregnant for the fourth time. The history of her previous labours was that of instrumental and difficult delivery. Pelvis was contracted in the antero-posterior and oblique diameters. In the effort to save a living child, the patient was anæsthetised and version performed, some difficulty being experienced in bringing down the foot which had been grasped. The child turned suddenly, and it was thought that the head could be felt on the right side of the uterus apparently just beneath the abdominal wall. The child was delivered without especial difficulty, and was asphyxiated, but resuscitated. When an internal examination was made, it was found that on the right side of the cervix a rent extended from the inner to the outer os uteri, extending through the muscular tissue opening the parametrium, and extending downward and on the right a distance of two cm. In this opening neither mesentery nor intestine was found, but only a few blood-coagula ; as the uterus could be easily brought down to the floor of the pelvis, the rent in its muscular layer was closed by sutures. The puerperal period was interrupted by parametritis, from which the patient recovered without further complication. (The American Journal of the Medical Sciences, March, 1893, p. 341.)

SYMPHYSIOTOMY.

At the American Gynæcological Society, September, 1892, Dr. Robert P. Harris, of Philadelphia, presented a paper on "The Remarkable Results of Antiseptic Symphysiotomy" in which he carefully traced the history of this operation. In the year 1778 the operation was performed in eleven cases, while from 1841 to 1858 it was performed in a like number. From July, 1858, to February, 1865, it is impossible to find the record of any case of symphysiotomy in the world. According to a report made by Prof. Morisani in 1886, eight women and five children were lost in eighteen operations. Since that report was issued forty women have been delivered by thirteen operators, with the death of only one woman (from metro-peritonitis, probably puerperal). Six of these women endured two operations each with entire success ; and thirty-five of the forty children were saved. Of the other five one was stillborn, two were fatally asphyxiated (one was a forceps delivery), a fourth lived twelve hours after delivery by version, and the fifth died on the third day of meningeal hemorrhage, having also been delivered by version. The forceps was used to deliver in twenty-seven cases, and

version was performed in five. Dr. Harris contrasted the three incisive methods of delivery in cases of contracted pelvis. At the present time the "improved Cæsarean section" would undoubtedly occupy the first position in the estimation of obstetric surgeons, and if it could be performed early enough the mortality might be reduced to a very low rate. The Porro-Cæsarean operation in general practice upon rachitic women has a larger mortality, and many object to its mutilating effects. Symphysiotomy is specially antagonistic to craniotomy, and its low mortality renders it an inviting and simple substitute for the latter. The method of performing the operation is as follows:—The following instruments should be thoroughly sterilised before the operation: a scalpel, Galbiati's probe-pointed, sickle-shaped bistoury, some hæmostatic forceps, a needle-holder and needles, a catheter, ligature-silk, gauze, and cotton. The woman is placed on her back at the side of the bed, with her knees drawn up and separated. The mons veneris and the labia majora are to be shaved and the supra-pubic region, the vulva, perineum, and vulvo-vaginal canal disinfected. The depth, thickness, and direction of the symphysis are to be examined, and the fissure in its superior edge which marks the point of union of the two pubic bones searched out. Then the inferior margin and the anterior and posterior faces of the bones are to be examined. A female catheter is introduced and placed in the hand of an assistant, that he may depress the uretha from the pubic region and at the same time carry it to the right side to save it from injury. A vertical incision is to be made through the skin and fat above the pubes, about $2\frac{3}{4}$ or 3 inches in length, terminating about three-quarters of an inch above the symphysis, cutting the tissues gently and passing in a line toward the left of the clitoris, so as not to injure it. The length of the incision must depend on the thickness of the fat to be cut through. The recti muscles are to be detached for a short distance from their attachment to the two ossa pubes, the left index finger is to be introduced into the opening and the retro-pubic tissue separated. The palmar surface of the finger is then to be directly applied against the posterior aspect of the symphysis, and hooked in the inferior margin of the articulation, while the assistant attends to the catheter as stated. The operator then introduces the Galbiati bistoury and hooks it around the articulation, cutting the inter-osseous ligaments and cartilage, from within outward, and from below upward. The completion of the section will be known by a creaking sensation and a separation of the bones of from $1\frac{1}{4}$ to $1\frac{1}{2}$ inches. After this step the wound is covered with gauze dipped in a bichloride solution of 1 : 4,000, and the delivery of the fetus attended to, the separation of the innominate bones being at the same time

atagonised by pressure with the hands of assistants. During the passage of the head the amount of pubic separation should be ascertained, the vagina sprayed, and when the placenta is delivered six or eight interrupted silk sutures should be introduced into the edges of the wound, which is dressed with sublimated cotton, 1 : 2,000, and a bandage applied to the pelvis and lower extremities. (Medical News, October 8, 1892, p. 416.)

Symphysiotomy.—Its Results.

The following remarks are taken from a clinical lecture:—This woman who enters the clinic room with her baby in her arms, walks, you see, with as firm and confident a step as yours or mine. She was delivered five weeks ago by pubeotomy, after a labour that had lasted forty-eight hours without the engagement of the head in the superior strait. In less than an hour after the operation began, the child was born alive and well. It has, as you see, thriven since. The mother's convalescence was complicated by a phlegmasia that appeared on the twelfth day, but has now subsided. This, I think, was due to the long pressure by the head upon the superior strait and the consequent compression of the blood-vessels in that situation. The operation can be performed by anyone who has a little experience in surgery, and has learned the principles of asepsis. Indeed, I fear that the symphysis pubis will be opened unnecessarily many a time in the future, and while the great present interest in the operation continues, I dare say we shall hear of women thus delivered who have had several children before without assistance. One of the most pleasant features of the renaissance of pubeotomy is the blow it deals craniotomy upon the living child. Up to the present time we have been obliged, at term, to offer to the parents the choice of Cæsarean section and craniotomy in cases of contracted pelves in which forceps or version was out of the question. In my experience—a large one in such cases—Cæsarean section has been refused without exception, when the true comparison of risks was stated. In the future, with an operation at my command, safer, easier, and usually quicker than craniotomy, I shall never again, I believe, do craniotomy upon a living child. The field of Cæsarian section must also be very greatly limited by our knowledge of pubeotomy. For the relative indication, at least, it will be displaced entirely. (Dr. Barton Cooke Hirst, Medical News, November 26, 1892, p. 604.)

TUBAL MOLES AND TUBAL ABORTIONS.

The ovum in tubal pregnancy may become converted into a mole, and may, just as in the ordinary uterine mole, be apoplectic. A tubal can usually be distinguished from a uterine

mole by the amniotic cavity being very excentric in position. The tubal mole may be discharged by rupture into the broad ligament, or into the peritoneal cavity, or it may be discharged through the ostium of the tube into the peritoneum. This is called tubal abortion. A tube may, however, rupture but the mole may remain in situ owing to adhesions. Again, the mole may not be properly ejected from the ostium of the tube owing to its size. In both these cases the hemorrhage may recur again and again. When the Fallopian tube is gravid, a decidua forms in the uterus, and is thrown off during the false labour, generally in small fragments and without pain. Although some clots found in Fallopian tubes are properly called hæmato salpynx the majority of specimens so described are gravid tubes. The rupture of a gravid tube or tubal abortion are the common causes of pelvic hæmatocele. (Mr. J. Bland Sutton, The Lancet, November 12, 1892, p. 1093.)

UTERINE HEMORRHAGE.—Hydrastinin for.

Dr. Gottschalk (*Therapeutische Monatshefte*, May, 1892) has had a large and favourable experience with this drug, which he uses subcutaneously, in the region of the glutei; or, if objection is made to this method, he does not hesitate to give it by the mouth. The latter channel must be used with care otherwise gastric disturbance may be caused; not more than five-sixths of a grain three times a day should be given internally. The fluid extract may be given, twenty drops three times a day, but the alkaloid has the advantage of being a more reliable preparation. Hydrastinin acts upon the vascular system to cause contraction of the vessels. It cannot be given in place of ergot, which acts upon the muscles of the uterus. He has found it serviceable in those uterine hemorrhages which are due to marked congestion of the uterus; and climacteric menorrhagias are much improved by a careful treatment with this substance. (Boston Medical and Surgical Journal, December 1, 1892, p. 526.)

UTERUS.—Backward Displacements of.

At the Obstetrical Society, on January 4, 1893, a paper by Dr. Herman on the "Frequency of the Local Symptoms associated with Backward Displacements of the Uterus" was read, the communication being based on an analysis of 407 cases of the abnormality. He found that chronic pain of some kind is present in nine-tenths of the cases of backward displacement of the uterus. The most frequent seat of pain is the back, generally the sacral region. Next most often come sensations of descent and unilateral pains, chiefly in the ovarian region,

cases of left-sided pain outnumbering those of right-sided pain in the proportion of three to one. In a small proportion lower abdominal pain is the chief complaint, and in a very small minority trouble in locomotion is the prominent symptom. Pain in defæcation is present in less than half the cases. In the majority of the cases in which it is present it is accounted for either by constipation or by morbid conditions of the rectum. Dr. Herman estimates the proportion of cases of backward displacement of the uterus in which the displacement is the sole cause of painful defæcation at about one in nine. Backward displacement of the uterus has no appreciable effect as a cause of painful micturition; but bladder irritation due solely to the displacement is present in about one case in five. Leucorrhœa is not commoner in cases of backward displacement of the uterus than among other patients. Dyspareunia is present in at least one-sixth, and probably in a large number; absent in at least one-seventh. (The Lancet, January 14, 1893, p. 86.)

VOMITING OF PREGNANCY.—Menthol in.

Dr. Moriz Weil, recalling the work of Gottschalk, Weiss, Lahnstein, Drews, Graefe, Kaltenbach, Lomer, Jaffe, Piza, and May, concerning the use of this drug for vomiting, records its successful use in a case under his own observation, in which muriatic acid, bicarbonate of soda, ice, cherry-laurel water, morphine, bromide of soda, hyoscyamus, chloral, and cocaine had failed. The formulæ employed have been those of Gottschalk (menthol, 1; alcohol, 20; distilled water, 150; a dessertspoonful every two or three hours); of Weiss (menthol, 1; alcohol, 20; syrup, 30; which makes a better solution); of the author (10 drops of a 20 per cent. solution in olive oil, dropped in finely-powdered sugar), the last formula leaving only a sweet taste in the mouth, after a little water has been drunk. The dose of menthol for this purpose is about a grain.—*Centralblatt für die gesammte Therapie*, 1892, Heft 8, S. 449. (The American Journal of the Medical Sciences, December, 1892, p. 712.)

Medicine.

GENERAL MEDICINE AND THERAPEUTICS.

Art. 1.—THE PARASITES OF CANCER.

By James Galloway, M.D., F.R.C.S., Pathologist and Assistant Physician to the Great Northern Central Hospital.

[Dr. Galloway after discussing the natural history of the coccidium oviforme as found in the rabbit, devotes the latter part of his Morton Lecture to the consideration of the parasite of cancer as follows :]

Taking cancer of the breast as an example, if careful microscopic examination is made, there will be found lying,

Fig. 1.

From cancer of the breast. Cells showing parasites contained in the cell body × about eight hundred. *p*, Parasite. *n*, Nucleus.

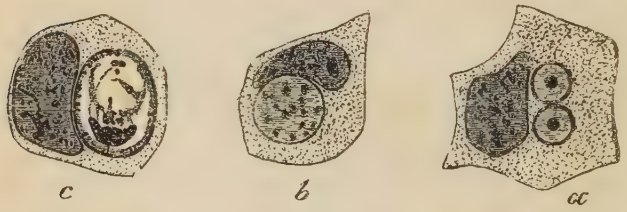
Fig. 2.

Parasites enclosed within the cell body × about 800.

most commonly within the cell body, rounded or oval structures varying in most cases from 2 μ to 10 μ in diameter, having when large a very distinct capsule, and presenting a smaller body of

variable shape, situated, as a rule, towards the centre of the capsule. From the capsule there may be seen passing towards the centre numerous fine radial striations, and the capsule itself occasionally seems to have similar markings. On the other hand, passing outwards from the nucleus towards the periphery may be observed processes of a somewhat different character ; they are not nearly so regular and appear to be prolongations of the nucleus. (Figs. 1 and 2.) These bodies occur usually one in a cell, but there may be more ; and in some cases eight or ten of small size may be seen lying closely together in a cluster. In a successful preparation each of the small ones may be noticed to contain the usual nuclear substance. (Fig. 3.)

Fig. 3.



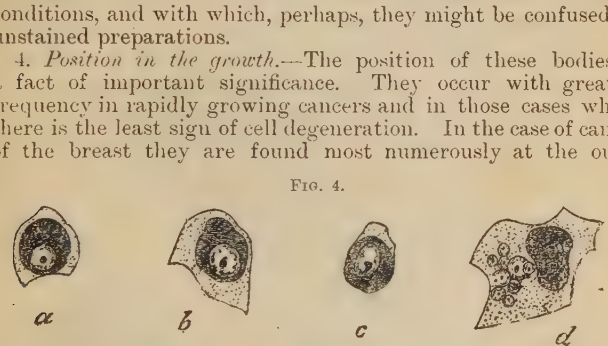
Cells from different cancers of the breast, showing various forms of parasites in the cell protoplasm × 1200.

2. *In the cell nucleus.*—Similar structures of smaller size may be observed lying inside the nucleus of the epithelial cell. In this situation the capsule, which is so very characteristic of the intra-cellular inclusion, is very slight, and indeed appears to be absent in most cases. The nuclear inclusions may be single or may also occur in small groups. Occasionally the bodies may be seen partly within and partly without the nucleus, as if they were passing out from the nucleus into the cell protoplasm. In this reference I would draw attention to an observation of Dr. Ruffer, who has been able to show that in certain cases the nucleus seems to become filled up with numerous small parasites which escape into the cell protoplasm after having burst through the nucleus. The intra-nuclear forms do not seem to be so common as the intra-cellular variety, and for some reason they appear to be more plentiful in certain cancers than in others. The features shown by many preparations strongly favour the idea that in some cases the inclusions multiply readily within the nucleus and ultimately free themselves from the nucleus and gain access to the surrounding protoplasm. (Fig. 4.)

3. *In the inter-cellular spaces.*—Bodies of similar character may be observed in much smaller numbers lying in the intra-cellular spaces, and more rarely still they may be seen lying two or three together in lines amongst the fibrous tissue at the margin of an alveolus—that is to say, in lymphatic vessels. It is difficult to say whether the latter appearances are accidental, but there seems to be no doubt that the bodies are of the same character as the intra-cellular and intra-nuclear forms already noted. They give the reaction which so readily distinguishes the body under consideration from the globules of altered chromatin which are so often seen in cancer and in other conditions, and with which, perhaps, they might be confused in unstained preparations.

4. *Position in the growth.*—The position of these bodies is a fact of important significance. They occur with greatest frequency in rapidly growing cancers and in those cases where there is the least sign of cell degeneration. In the case of cancer of the breast they are found most numerously at the outer

FIG. 4.



a, *b*, *c*, Cells showing parasites occurring within the nucleus × about 800. *d*, Numerous parasites in the nucleus and in the cell protoplasm × about 1000.

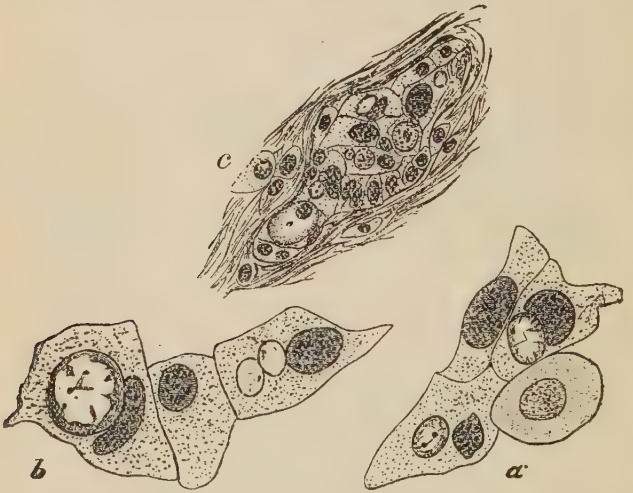
margin of the mass of cancer or in the outlying alveoli and in recently infected lymphatic glands. On approaching the centre of a mass of growth or where degeneration has commenced, they begin to be less readily recognised, whereas the many varieties of so-called "cancer parasites" to which I have drawn attention become more and more numerous. The disappearance of these characteristic forms must not be taken as necessarily implying destruction, for it must be borne in mind how resistant are the adult coccidia in the case of the rabbit and how they continue to develop in situations where their destruction by decomposition would seem to be inevitable.

It will be gathered from what I have said that I have described these bodies with so much detail for the purpose of concentrating special attention on them, as being the only bodies yet found which show any probability of being parasitic. Their occurrence within the cell as a distinctly foreign substance, their appearance so strongly suggestive of an organised structure, the staining reactions which they give so distinct from those presented by

the normal contents of cells, their great analogy in this latter respect and especially in their behaviour within the cell, and possibly also external to it, to well-known species of sporozoa recognised as parasitic in animals, all point forcibly to the conclusion that these bodies, though not necessarily coccidia, are nevertheless protozoa and are parasitic in cancerous epithelium. (Fig. 5.)

In reference to the question of sarcoma, it can only be said at present that parasites cannot be so easily identified by the methods I have described. Although it seems probable that

FIG. 5.



a and *b*, Groups of cells containing intra-cellular parasites × about 1000. *c*, Cancer alveolus from edge of rapidly growing carcinoma of breast, showing numerous parasites × about 400.

parasites do exist in sarcomatous tumours, no definite opinion can yet be expressed. The subject is now under consideration.

The further questions which arise—namely, Can the parasites be observed in undoubted sporulation forms, and can they be observed developing outside the body? What influence have they on epithelial cell multiplication? and, finally, Have they a causative influence on cancer?—are now the points to be investigated; and it must not be considered a reproach if as yet no definite answer may be given. It will be remembered that, although the very characteristic coccidium oviforme was

recognised so long ago as the year 1839 by Hake in this country, it is only within the last few months that the description of the processes, apparently completing our knowledge of the anatomical changes in the life-history of this organism and accounting for the enormous rapidity of its multiplication within the body of its host, has been made known by Dr. R. Pfeiffer. Speculations on my part as to the *rôle* of this "cancer organism," although they are tempting, are better avoided; they will occur to all those who have studied the subject; in the meantime I am satisfied if I have placed the facts so far as they are known before you. The prospects of the research are encouraging, if it is only from the point of view of opening up the possibility of a cause of cancer more hopeful as to curative measures than that suggested by the hypothesis which has so long held the field.—*The Lancet, February* 4, 1893, *p.* 233.

2.—A CLINICAL LECTURE.—THE METHOD OF USING THE COLD BATH IN TYPHOID FEVER.

By William Osler, M.D., Professor of Medicine in the Johns Hopkins University.

Gentlemen: Most of you have seen the application of this method in the wards, but I shall emphasize certain points in the procedure by having one of the patients bathed before you, so that you may see the minutiæ.

The ward orders are as follows: The temperature of typhoid-fever patients is to be taken every two hours; when above 102·5°, a bath at 70° is to be given every third hour. The patient before you has reached the sixteenth day of the disease. He has been in hospital nine days, and has had thirty-six baths. The tub is wheeled to the side of the bed—a practice much preferable to that followed in some of the foreign hospitals of carrying the patient to the bath, or indeed allowing him, if he is able, to walk to it.

The technique of the procedure is as follows: The tub, as you see, is of light *papier-maché* material, and even when filled with water, as at present, is readily portable on wheels. The temperature of the water is 68°. Here in the amphitheatre we shall reverse the usual procedure and have the patient wheeled to the side of the bath. The preparation is extremely simple. The heavier bedclothes are removed and a light sheet is thrown over the patient from the neck down. Under this his night-shirt is removed, and, if necessary, a light napkin is applied over the genitals. The patient is given a small quantity of

whiskey. Two orderlies will now lift him into the bath, still covered with the sheet. This patient happens to be a large, well-nourished man, and he fits very comfortably into the bathtub, having, as you notice, an air-cushion supporting the head and neck. You will see in the ante-room one or two other forms of bathtubs, one of which has a sloping platform for the support of the back. In more delicate, particularly in thin, emaciated, patients the greatest care must be taken to support the nates and make the posture in the bath as comfortable as possible. A cloth wrung out of ice-water is placed upon the patient's head, and with a small sponge the head and face are kept bathed with the same water. You see here an unusually docile patient, who takes the baths without much protest, but, as you have just heard him say, he would prefer them warm. Systematic friction is now applied to the skin either with the hand or by means of a cloth or india-rubber rubber, which for convenience may be attached to a stick. The friction is rightly regarded as a very important element in the treatment, though, as you hear from this patient, he does not at all like it, and prefers to be left alone. The abdomen should not be rubbed. While the patient is in the bath, the bed is prepared for his reception with a rubber sheet, a blanket, and over these an old linen sheet. (After remaining in the bath for twenty minutes the patient was lifted out.)

I am glad that you have witnessed the little *contretemps* in lifting this patient out of his bath. You see that he is a strongly built, heavy man, and the orderlies were only just able to lift him from the bath to the bed, and you saw that in doing so there was some little difficulty, owing to the catching of one arm on the side of the bath. This, however, does not very often happen, but now and then patients complain of scratches in the process of lifting in and out of the bath ; and though done, as you see, with the greatest possible care, these little accidents are liable to happen. The man is now well wrapped up in the sheet, which is tucked in between the arms and legs, and brought well around the neck. Over this the blanket is placed. In cases in which the temperature is very high the patient may remain in the sheet for from five to ten minutes, but under other circumstances he may be carefully dried at once. You see that this man retains a good colour in his face ; the extremities are cold but not livid ; and he is now beginning to shiver. Very often this shivering is distressing while in the bath, and one of the most unpleasant features of the system. If the patient is very cold and the shivering is extreme, hot bottles may be applied to the feet and at the sides. You see by this two-hourly temperature-chart the influence of the baths ; and half an hour after this the temperature will be taken again, and the record made.

If at the end of three hours the temperature is again above 102·5°, he will have another bath such as you have just seen. Now, before the patient is wheeled out, he will be given two ounces of hot milk with a little whiskey.

Practically what you have seen in this case is the routine of our treatment. The patients receive no medicine other than the alcohol, and that we do not give as a matter of course, but as a rule only, before and after the bath. In other cases, when the heart becomes feeble, we give strychnine, and in some cases digitalis and ether. The effects of the baths are: first, to reduce the fever, principally by favouring heat-dissipation and by the direct action of the cold water upon the blood that circulates in the superficial vessels; secondly, as a general tonic to the nervous and circulatory systems. Perhaps the most striking effect is seen in the lessening of the nervous irritability, the favouring of sleep, and the clearing of the mind. In patients treated early by this method we rarely see the dry tongue, muttering delirium, the subsultus, and the other grave nervous phenomena which are of such serious import in typhoid fever. The baths, too, appear to improve the general nutrition, and the patients take their food better, digest better and, as has been said, the vital processes all seem more active. Do not suppose, however, that you can, as Brand enthusiastically says, keep the patient in an almost afebrile condition. An inspection of any series of carefully taken charts will convince you that this is an impossibility; the temperature rises again in a variable space of time, and in some instances the influence of the bath upon the rectal temperature is extremely slight.—*Medical News*, *Dec.* 3, 1893, *p.* 628.

3.—REMARKS ON VENESECTION.

By Samuel West, M.D., F.R.C.P., Assistant Physician to St. Bartholomew's Hospital.

Free bleeding has gone out of fashion, and, I think, rightly, as a routine method of treatment, for it was based on an incorrect pathological theory, and found, when indiscriminately used, to be harmful. Still, the prejudice excited by its abuse has caused bleeding to be discarded when it ought to be of use. The indications for bleeding seem to be especially two, the one mainly mechanical and the other mainly physiological. In the one case, by the rapid removal of blood in sufficient quantity, mechanical relief may be given to an overdistended heart or vessels, as, when there is extreme congestion in the pulmonary circulation, or when a dilated heart is failing from over-distension. In the other the bleeding is performed in order to produce

rapidly the physiological effects of loss of blood with the view of controlling, and if possible checking, a hemorrhage which is taking place elsewhere into a vital part. Hemorrhage, unless it comes from a very large vessel, is rarely of itself fatal. Patients die after hemorrhage but not often of it, for as soon as a sufficient amount of blood has been lost fainting occurs, the blood pressure falls, and the blood has time to clot and seal the aperture, unless the bleeding vessel be too large. Within the skull and in the lungs death from hemorrhage is not rare, but it is due in the former case to the effect of the hemorrhage on the brain, and in the latter to suffocation. The danger to life in both cases is not so much from the hemorrhage, but from the place in which the hemorrhage occurs. If then the collapse necessary to produce the fall in blood pressure could be rapidly produced by bleeding elsewhere, the further escape of blood into the dangerous parts would be prevented. Consequently in apoplexy, and even in profuse suffocative hæmoptysis, a timely bleeding might save life, but it is the timeliness that is of the essence of the treatment, and in the nature of things appropriate cases must be of rare occurrence. Bleeding for hæmoptysis must ever remain a matter of theory rather than of practice. I have never bled for hæmoptysis myself, for I have never seen what appeared to me a suitable case, but it was an old-fashioned and recognised method of treatment. Ordinary hæmoptysis, even when profuse, does not call for bleeding, and suffocative hæmoptysis, the only form in which bleeding would fulfil the indication, is too quickly fatal, and gives no time.

In the first two cases the bleeding was performed on account of grave cerebral symptoms. Both were of great gravity, but they came under observation very early, and I attribute the recovery in both to free timely bleeding.

The first case was one of hæmoptysis with convulsions in a man at 54, who recovered after bleeding to 30 ounces. I believed the lesion at the time to be a hemorrhage either into the cortical region or in the pia mater, and I certainly thought that the patient was dying at the time I saw him. Bleeding seemed to me to offer the only hope of saving his life, and I attribute his recovery to it. I have since then seen him many times, and he has remained, as far as I have heard, in good health.

The second case was one of aphasia with convulsions, in a man aged 42, who recovered after bleeding to 40 ounces. The patient was in comfortable circumstances, had never had any definite illness, but it transpired that he was very intemperate, and had been frequently under advice for what he called attacks of the liver. Careful inquiry failed to elicit that he had ever had anything like a fit before.

The fits were of a remarkable character, at first limited to the one side of the face, and then slowly involving a wider and wider area, and ultimately the whole right side, when they finally became general, being much more marked on the right side than on the left. These facts seemed all to point in the direction of a localised lesion on the left side of the brain—a view which gains support from the fact that as the patient recovered he suffered greatly for many days from severe pain on the left side of the head. The sudden access of the symptoms and their rapid ingravescence suggest hemorrhage as the cause—a view which again is supported by the high tension of the pulse at the time and by the persistent trace of albumen present in the urine, pointing, it would seem, to the probability of granular kidney, though the existence of a syphilitic eruption renders it possible for the disease of the vessel to be syphilitic. A syphilitic gumma of the brain or meninges it could hardly have been, for the symptoms were transitory and distinct evidence of cerebral tumour was lacking. The conclusion drawn at the time that there was a hemorrhage into or upon the cortex was justified by the subsequent course of the case, and I think that must be the correct diagnosis. If so, there can be little doubt that the active treatment adopted deserves the credit of having, in all probability, saved the life. This and the previous case, which in so many respects so closely resemble one another, were two of the most alarming cases of the kind that can well be met with. They seemed to be almost hopeless, and I do not hesitate to attribute their recovery entirely to the active treatment adopted. In the third case (a case of unilateral convulsions, due to fracture of the base of the skull and rupture of the middle cerebral artery, in which bleeding to several ounces was done without avail) the result was not so satisfactory.

The seat of the hemorrhage being what it was, it was obvious that no relief could have been given by trephining, nor even if the patient had been bled to fainting was it likely with such an injury to so large a vessel that the hemorrhage would have been stopped. The case is useful rather as a commentary on the others.

I now pass to the second group, in which the object of the bleeding was to give relief to an over-distended heart or vessels. I could give a few instances of this kind, in which a single bleeding was performed with benefit for the time. Venesection is so obviously a rapid means of relieving a distended and failing right heart, that it would be more often practised were it not that the cause producing the distension is generally irremovable, and that the loss of blood, while giving only temporary relief, increases the cardiac feebleness to which in

great part the distension is due. It is not in cases of chronic failure of the heart, whether the cause be in the lungs or heart itself, that bleeding is of service, but in those in which the failure is sudden and the symptoms acute.

In this connection I wish to make a few remarks in reference to pneumonia. In the first place, it is generally agreed that no patient with pneumonia should be bled if it can be avoided; but, at the same time, conditions may arise in which bleeding may be really the only means of saving life, the conditions being those already referred to, namely, rapidly increasing cyanosis and failure from overdistension of the right heart. Still, such cases are at the most rare. Bleeding in pneumonia if unnecessary must be harmful, for cardiac asthenia is one of the chief dangers, and the risk of it is increased by bleeding. A vicious circle is thus established, for cardiac failure may itself produce the very symptoms regarded as indications for the bleeding, which in its turn will increase the cardiac weakness which has caused the symptoms. The question must be decided largely by the condition of the left ventricle, and it is unnecessary to say how difficult this is to determine. When the left ventricle is weak and failing, bleeding can do no good, when it is strong, bleeding may save life. Thus in pneumonia bleeding becomes a critical measure. It may save life, but it may, if wrongly employed, take all chance of life away.

I should summarise my experience thus. Bleeding may save life sometimes in pneumonia, but very rarely. Most patients in whom the indications for bleeding are present die whether bled or not; and, on the other hand, I can recall several instances in which venesection was discussed and decided against, and in which a good recovery took place.

Lastly, it remains to refer to that group of cases in which the bleeding is performed with the view of removing some *materies morbi* supposed to be in the blood. In the present day it is especially the cases of uræmia which fall into this group.

I have bled many times for uræmia. I cannot say that I ever saw more than a temporary benefit, and often not even this. Experience leads me to the belief that for uræmia bleeding offers little if any hope. The cases I have brought forward are but few, and chiefly drawn from an extensive hospital experience of many years, though not quite all that have come under my observation. Their fewness shows what I believe—that suitable cases for bleeding are comparatively rare. So much has been said and written recently on the subject, that an impression is left upon the mind that bleeding is more commonly practised in the present day than I believe it really is and my own experience shows.—*British Medical Journal*, *November* 5, 1892, *p.* 991.

4.—ON THE GREAT PRACTICAL IMPORTANCE OF SEPARATING RHEUMATOID ARTHRITIS FROM GOUT.

By Sir Alfred B. Garrod, M.D., F.R.S.

The study of articular affections some thirty years ago led me to the conclusion that the majority of the cases then called "rheumatic gout" were related neither to true gout nor true rheumatism, and that they had an independent pathology of their own; and if such is the case, the term "rheumatic gout" was doubly wrong. I must confess that even before I proposed to change the name of the disease it struck me as very peculiar that there should be such a compound malady; it would have appeared to me no more surprising to hear of scarlet-fever-measles or any other combination of diseases. I proposed the name of "rheumatoid arthritis"—a name which does not imply any error, but assumes the disease to be an arthritic or joint disease having some of the external characters of rheumatism,—and the name has of late years been very extensively used, nor should I wish to alter it, although I allow that a better name may one day possibly be found. Arthritis deformans has been applied to the malady, and this again is not an erroneous name, though in the earlier stages of the disease it is by no means a characteristic one. The term "rheumatic arthritis" is nearly, or at least half, as bad as that of "rheumatic gout," as it implies the existence of one error instead of two. I am not aware of any two joint affections which are so frequently mistaken for each other as gout and rheumatoid arthritis, and I know of no errors of diagnosis which have led to so much mischief; nor is it difficult to understand why such terrible results are apt to follow, seeing that both the medicinal and dietetic treatment so useful in the one disease may prove most injurious in the other. My case books, even of the last ten years, contain fearful instances of the ill effects which may arise from such errors of diagnosis; and if in the present lecture I am able to prove to you the truth of these statements, I shall feel that I have not devoted my allotted hour to a useless purpose.

Before selecting actual cases of these diseases and pointing out the way in which one may be separated from the other, it will be necessary for me to bring before your notice the principal features which characterise both gout and rheumatoid arthritis. This I shall endeavour to do in as few words as possible; and first we shall speak of gout. You have probably been accustomed to hear gout spoken of as simply a joint affection, in which occasionally the disease is transferred either from one joint to another, or sometimes from a joint to some other organ.

This was my own idea a few years ago ; but a very extensive experience has disposed me to look upon gout as a systemic disease, invariably connected with a peculiar and characteristic state of the blood, which I shall shortly describe, and to consider that it may and does frequently exist for many years without the development of any joint affection, but confining itself to the production of changes in numerous other tissues and organs. The characteristic features of gout may be thus described :— 1. In all cases of gout, articular or not, there is an excess of uric acid in the blood. 2. The tissues of the joints which have been subjected to gouty inflammation always exhibit deposits of uric acid in the form of the biurate of sodium in a crystallised state, and this deposit must be looked upon as the cause, not the result, of the inflammation —in other words, the deposited urate is antecedent to the inflammatory action. 3. The inflammation which occurs around the deposited urates produces a destructive action upon them. 4. Gout is often manifested in non-articular structures, as the skin, kidneys, bladder and prostate, throat, digestive organs, muscles, and so forth. 5. (*a*) Gout has a close relation to the patient's diet, especially to his alcoholic beverages ; (*b*) gout is much more common in men than in women ; (*c*) gout is a strongly hereditary disease. We must now discuss at least some of these different statements.

1. Many years have now elapsed since uric acid was discovered in the blood. In June, 1847, I procured the blood of a patient suffering from a severe attack of typical gout, and on carefully examining the same was enabled to separate uric acid from it, either in the form of the crystallised acid or as the biurate of sodium. These researches were published in the Transactions of the Medical and Chirurgical Society in 1848 and following years. It may perhaps be well to mention that at the time I made these observations there was no difficulty in procuring a sufficiency of blood ; venesection was constantly performed and even looked for by patients who had any inflammatory disease. At the present time it would be practically impossible to make such investigations as I then was enabled to pursue.

2. A proof of the truth of our second statement—namely, that the deposition of urates in the tissues is antecedent to the occurrence of the inflammatory action—is seen during the formation of the little bodies which so often occur in gouty subjects in the helix and other parts of the external organs. At first we observe a little vesicle ; the contained fluid is almost transparent ; this fluid gradually becomes more or less opaque or milky, then creamy ; afterwards the consistence gets cheesy, and lastly chalk-like in its hardness. In by far the great majority of cases these deposits in the ear are unattended with any inflammation ; there are, however, well-marked exceptions

to the rule. Every post-mortem examination shows the uniform occurrence of urate deposits whenever any joint has been attacked with gouty inflammation, and I was enabled to show the deposits in two interesting cases: one that of a man who, during life, had two distinct attacks of gout confined to the ball of one great toe, and in this subject examination showed the deposit in this joint only; the second case was also that of a man who had but one attack thirteen years before his death, and in this instance the deposit was found in parts known to have been implicated during life, and in these only. Extensive deposits of urates are often found in the bursæ or the elbows, which at times are unaccompanied with inflammation.

3. If a large joint, such as a knee, which has been often subjected to gout be examined after death, it will be seen that the deposits on the synovial surface do not approach near to the blood-vessels, which would seem to show that the blood-vessels of the inflamed surface have caused the partial destruction of the previously deposited urates. That the blood of any tissue in a state of gouty inflammation contains less uric acid than that of any other part of the same subject is not difficult of proof and may be easily shown by the application of a blister to the part. I have found, for example, that the fluid from the inflamed dorsum of the hand has been free from uric acid when that from the chest of the same person was rich in that acid. The slight inflammation caused by the blister itself to some small extent destroyed the uric acid.

4. In the non-articular manifestations of gout, which are far more numerous and frequent than I was formerly disposed to admit, and which are perhaps less frequently found in hospital practice, the parts most commonly affected are the following:—

(*a*) *The Skin.*—Now and then, in gouty conditions, we find different varieties of erythema. It may, however, be questioned if this cutaneous affection is more frequent in gout than in many other diseases—it is certainly much less common than in rheumatism. Eczema, on the other hand, is the skin disease which is so characteristic in gouty subjects; it presumably occurs before the articular manifestations and becomes relieved by their occurrence; but it often remains during the course of the joint disease, and at times continues for an almost indefinite period afterwards. It is not uncommon to meet with eczema in the children of gouty parents, even when they are still quite young. On the other hand, it is often the bane of gouty subjects in the latter years of their lives. The production of eczema is doubtless a means of getting rid of uric acid from the blood; but, contrary to what might have been at first supposed, the fluid of eczema contains no urates. This is easily explained, for each vesicle, the product of inflammation, causes the destruction

of the acid, which is converted into other products. I have as yet failed to discover uric acid either in the liquid exudation of acute eczema or the scales from the surface of the dry variety.

(*b*) *The Kidneys.*—The kidneys are perhaps equally as liable to be attacked, but certainly not so early in the disease, as the skin. Traces of albumen are most common in the urine of gouty patients, often most minute in quantity, but still indicating the presence of some gouty action, and of a deposit of urates in the intertubular structures. In the early stages I frequently found albumen to be quite absent during the complete intervals of gouty attacks. With regard to the occurrence of gravel and calculus, it may be remarked that some gouty subjects are troubled with calculi, and the children of such are rather liable to this malady. My friend, Sir William Roberts, has well said in his recent Croonian Lectures that "many gouty people are never troubled with gravel, and conversely that many subjects of gravel are never troubled with gout. In both complaints there is an aberration of uric acid ; but the error is essentially different in the two cases, both in regard to its site and to its nature." Albumen in the urine is doubtless often caused by a gouty change in the kidney; but, on the other hand, albuminuria from any cause will certainly predispose to the production of a gouty state of the system.

(*c*) *Muscular system.*—The voluntary muscles are often affected in gout in the form of cramps, and this symptom can sometimes be made use of as a diagnostic mark. Nothing is more common than to find patients complaining of cramp in the calf of the legs, and feet early in the morning for days and weeks before the commencement of an attack of joint affection, which passes off at once when the articular inflammation comes on. My experience would lead me to think that the involuntary muscles are not very frequently affected in gout. The heart is supposed to be so at times, but true spasm in an otherwise healthy heart it has not been my lot to become acquainted with. Lumbago and other forms of the so-called muscular rheumatism are very frequently associated with a gouty state of the system.

(*d*) *Digestive organs.*—For weeks, months, and even years, before an attack of gout in the joints it is not unfrequent to find patients suffering much from indigestion, usually of an irritative character, often accompanied with much flatulence, pain, red tongue, and hemorrhoids—symptoms indicating that the mucous membrane of the stomach is slightly inflamed, and that the portal vessels are in a state of congestion. I have also thought that gouty patients are very liable to have a loaded state of the colon and fulness of the liver ; but whether this condition is more common in gouty than in other subjects I could not positively say. When gout has been induced

by the mode of living it is probable that the whole portal system has been also disturbed by the same cause. The throat, nose, prostate gland and testicles are at times implicated in gouty patients. Sore-throat is exceedingly common and often alternates with other manifestations of the disease. The tonsils usually exhibit a peculiar purplish colour, without showing any appearance of acute soreness. In a very few cases I have seen the end of the nose unmistakably affected by gout, causing great inconvenience and suffering. The prostate gland is not unfrequently attacked, and its gouty character can be easily seen after a time by the quick subsidence of the symptoms, especially if a large joint becomes inflamed. In several cases I have seen one or both testicles attacked with gouty inflammation.

(*e*) *Circulatory and respiratory systems.*—There is a very prevalent idea in the profession, as well as amongst the public, that the heart is often attacked by gout, and there are records of many men, some of considerable eminence, who have died suddenly from this cause. I have never myself seen acute pericarditis or endocarditis brought on during an attack of articular gout. Doubtless the subjects of gout very frequently have chronic valvular disease, as the causes which induce gout lead also not uncommonly to slow valvular changes.

Rheumatoid Arthritis.—Arthritis Deformans.—It will now be necessary for me to state the chief characteristics of the second disease, which we have agreed to call "rheumatoid arthritis," before we attempt to separate the two maladies from each other. 1. In rheumatoid arthritis there is an absence of any excess of uric acid in the blood ; in this respect it differs altogether from gout. 2. The examination of the joints which have been implicated in rheumatoid arthritis fails to exhibit any evidence of the presence of biurate of sodium, either on the surface of the cartilages or in the surrounding articular tissues. 3. On the other hand, even in the earlier stages of rheumatoid arthritis, there is a marked alteration in the cartilages ; there is ulceration from the very first, and in time the bones become completely denuded. In one instance a man under my care in the hospital had the inter-articular fibro-cartilage of the left maxillary joint completely removed, the surface of the maxillary bones denuded and the projection of bony prominences fitted so closely as to cause complete locking of the jaw. 4. Rheumatoid arthritis, as far as my knowledge of the disease at present goes, manifests itself only in the joints. We have no evidence of the existence of any morbid state of the blood. There is in all cases some defect of nutrition which appears to affect such tissues as the cartilages, which are comparatively free from vascularity. In this respect it differs completely from gout, where so many

organs of the body may be implicated. 5. There certainly is a close connection between rheumatoid arthritis and the state of the nervous system. Severe and long-continued mental depression is a very fruitful cause of the disease, but physical causes, such as frequent losses of blood, will also lead to its development. 6. There is no known relation between the condition of the kidneys, skin or digestive organs and rheumatoid arthritis. 7. The selection of the joints which become implicated in rheumatoid arthritis differs much from what is seen to be the case in gout. A knowledge of this fact is often of much use in arriving at a diagnosis. If a first attack begins in the great toe specially it is highly probable that the case is one of true gout; the frequency of its occurrence in this locality is so great as to render the symptom almost pathognomonic. There are, however, a few exceptions which must be carefully investigated when they occur. There is a special tendency in rheumatoid arthritis to an affection of the jaw and also the back of the neck; the number of cases in which one or both of these parts are attacked is very great. I should imagine at least two-thirds of the patients affected with this disease experience these symptoms during its course. At times, however, the neck may become quite set from an ankylosis of some of the cervical vertibræ, and occasionally the jaw becomes so rigid as to require the removal of a tooth in order that nourishment may be introduced into the mouth. There is scarcely any other disease in which these symptoms are found; so that their occurrence is of great value in the diagnosis of this malady. 8. The effect of diet in rheumatoid arthritis is much less marked than in gout. I am not aware of any special articles of diet influencing the progress of rheumatoid arthritis when it is present, or leading to its first development. It may be regarded as certain that any diet which is insufficient to keep up the general health leads to the increase of the disease; and, on the other hand, any diet which improves the strength tends to lessen the affection. With regard to alcoholic beverages, I may remark that malt liquors, port, sherry, champagne and other wines, so potent in the production and keeping up of true gout, have no influence in causing rheumatoid arthritis. Total abstainers are quite as liable to rheumatoid arthritis as those who have taken ordinary alcoholic drinks. I have had many cases illustrating this point—one a clergyman who had never in his life tasted alcohol, and whose father and mother had been rigid abstainers. 9. Females are more liable to rheumatoid arthritis than males, and there can be no doubt that the influence of heredity is very much less marked in rheumatoid arthritis than in gout. 10. Rheumatoid arthritis may occur at any age. I have seen a well-marked case in a child of three years and a half old I have also seen it commence in patients eighty-seven

years old; but the more common time is from about fifteen to thirty years. Gout, on the other hand, is much more commonly met with after forty years of age.

Having described the chief characteristics of the two maladies I shall endeavour to point out such diagnostic marks of each disease as will enable us, with something like certainty, to separate the one from the other. I must here repeat that I consider it a matter of extreme importance to form a correct diagnosis, and that the failing to do so must not be looked upon as a mere pathological error, of consequence only from a scientific point of view. To mistake true gout for rheumatoid arthritis is, perhaps, of comparatively little importance; it might, and probably would, by the treatment adopted, lead to a prolongation of the attack and inconvenience to the patient; but to mistake rheumatoid arthritis for true gout is often the cause of irreparable mischief, and may lead to the worst form of crippling. In the moderately advanced stages of true gout, when chalk stones are visible either on the helix of the ears or bursa of the elbow or other parts, it is difficult to see how any error of diagnosis can be made, for urates are never deposited except in true gout. I must direct attention to the fact that deposits often occur in the external ear before they are visible in other parts of the body, and this may become very important in diagnosis. In many cases I have been materially assisted by attending to this pathognomonic sign.

In the early stages of gout the diagnosis is, as a rule, very easy: the suddenness of its invasion, often during the night; the acuteness of the pain; the joint most frequently affected; the short duration of the attack, usually not more than ten days; the history of the case as to diet, and more especially as to the character of the alcoholic beverage; the presence or absence of hereditary predisposition—these taken together are usually sufficient to ensure a correct diagnosis. There are, however, cases of true gout occurring in elderly people, more especially in women—they often affect the knee or other large joint—in whom the inflammation is by no means acute, but the joint remains a long time affected. These cases are difficult to diagnose correctly. The effect of treatment in such cases assists greatly in the diagnosis. The fear, however, is usually not that true gout may be mistaken for rheumatoid arthritis, but that cases of this latter disease may be looked upon as of a gouty character. This error is infinitely more common and infinitely more seriously than the other. Let us take as an example the case of a young woman who is suffering from inflammation of the ankle, wrist or hand, with little, or at any rate no great, constitutional disturbance. From my experience, cases of this kind are constantly looked upon by many practitioners as of a true

gouty nature, and are treated accordingly. Moderate attention to the character of true gout and of rheumatoid arthritis would enable anyone to form a correct diagnosis. In such a case we should in all probability fail to find evidence of any hereditary predisposition or of any habit of the patient likely to lead to gout—for instance, the absence of eczema, cramps, kidney mischief and other gouty symptoms. We have, in fact, an alteration in one or more joints which, as far as we can make out at present, constitutes the disease. The treatment is usually of the following character: abstinence from meat (red meat especially), sugar and all alcoholic beverages. Many patients are not allowed vegetables, and fruits are often altogether prohibited. As far as medicinal treatment is concerned, salines, iodide of potassium and colchicum are most frequently administered. Under this treatment, accompanied as it frequently is by long immersion in baths, the invalid almost invariably gets worse, new joints become affected, and not infrequently the patient becomes gradually crippled.—*The Lancet, November* 5, 1892, *p.* 1033.

5.—ON FEEDING IN FEVERS.

By George L. Peabody, M.D., New York.

In following other physicians in the hospitals to which I am attached, *i.e.*, in succeeding them in attendance each year when my term of duty begins, I always find a certain number of fever patients, and I usually find that they are allowed only fluid foods. Of these foods milk is the most important. Milk seems to be generally regarded as a fluid, and a very harmless-looking fluid it certainly is when it is put into the stomach; but if it is to be digested and assimilated at all, it is very soon transformed into a bulky solid after it reaches the stomach.

There are many patients to whom milk in any form is repugnant, and to some of these it is exceedingly difficult of digestion. It has been my practice for many years, in all kinds of illness, but especially in the presence of fever, to pay regard to the appetite and desire of the patient. If a patient is really hungry solid food of a properly selected kind and in judicious quantity will rarely disagree with him. With hospital patients it is not always easy to ascertain whether they are really hungry. Many will profess hunger without being hungry because they suppose that they will recover more quickly if they eat freely. To them, of course, other solid food than milk should not be given, but if they are genuinely hungry I believe it is safe to

presume that the stomach is prepared again to resume its function, that gastric juice is again secreted, and that properly selected albuminous food in judicious quantity will be digested if you give it.

We are accustomed I think to have too great a dread of doing harm at the site of lesion in the ileum in typhoid fever by giving solid food. If I am correct in my opinion as to the inference to be drawn from hunger in a fever patient, there is even less likelihood of causing damage to an ulcerated ileum by giving finely divided egg or beef or chop to such a patient than by giving him milk ; and my experience seems to justify the inference. It has been my practice for years to allow albuminous foods of these descriptions to such patients, even before the fever leaves them, under these conditions. I have at present under treatment several patients with typhoid fever whose temperatures reach 101°, 102°, and 103° F., daily, who are hungry, and who are receiving such solid food once a day. So far as I am aware I do not have a larger percentage of relapses or hemorrhages or other serious complications or accidents in my practice than I did before I adopted this plan, or than my colleagues do who have not yet adopted it.

Even tea and coffee and beer are not allowed by many doctors ; in my hands they have been very useful when given to those who have been accustomed to them in health and desire them in fevers. Well-cooked oatmeal is another very nutritious food that I allow under the same conditions as meat.

When the appetite fails, in consequence of the presence of fever, meat becomes more repugnant than any other food as a rule. Then it would be most injudicious to force it upon a patient ; but the returning appetite, the awakening desire for meat, I believe to be nearly always an indication that the stomach is prepared to take care of it. That much is gained by maintaining the nutrition of fever patients needs not to be mentioned. Of course, the necessity of giving an abundance of water is not to be lost sight of.

What I have said of feeding typhoid-fever patients is equally true in other forms of fever. It is, in my judgment, a mistake to withhold solid food merely because a patient has fever, and it is incorrect to regard milk as a fluid food, as our knowledge of the physiology of digestion teaches us. Our knowledge of the form in which milk often appears in the fæces emphasizes this latter fact. Milk will always remain the most serviceable general food in disease, and especially in fever, largely because it is swallowed with much less effort than attends the taking of other foods ; because it is the cheapest of the foods ; because it requires little or no preparation, and because it is so commonly well borne. But where it fails to nourish the patient, where

it is not well borne, where it cannot be taken, for any reason, it is well to remember that efficient adjuncts and substitutes are within reach.—*New York Medical Record, November* 26, 1892, *p.* 620.

6.—CLINICAL AND THERAPEUTIC OBSERVATIONS UPON THE CHOLERA IN HAMBURG IN 1892.

By F. Reiche, M.D., Resident Physician in the New General Hospital, Hamburg-Eppendorf.

Two features characterised this epidemic in contrast with the majority of others: the absence of febrile temperature early in the attack and the conspicuously frequent absence of all prodromal symptoms, particularly the premonitory diarrhœa. Observations bearing upon the temperature were made in comparatively few cases; but neither I nor others, so far as I have been able to learn, observed in the algid stage greater differences between the temperature of the axilla and that of the rectum than are at all times present.

In the majority of cases, thus, the disease set in abruptly and at once assumed its full intensity, so that frequently, and particularly at the beginning of the epidemic, profound collapse, with diarrhœa and cramps in the calves of the legs, speedily followed the initial vomiting. Cases of fulminant cholera sicca were common at this time. Individuals would be stricken upon the street, while at work, and during a meal.

The clinical picture presented by the disease did not differ from that presented in previous epidemics. A secondary febrile period, or so-called reaction, lasting from a few days to two weeks, appeared in the train of many cases of marked and of moderate severity, often without noteworthy disturbance of the general condition; but in a smaller proportion of cases, with more or less well-marked typhoid manifestations.

In isolated cases the spleen was found to be enlarged. In many cases of grave type the algid or asphyctic stage was followed by a profound and almost always lethal sopor, in many respects resembling the coma of uræmia, from which, however, it differed in the absence of all convulsive manifestations. In the cases under my observation the pupils were, under these circumstances, always contracted; œdema was absent; frequently there was marked restlessness; the pulse was tense and slow; the cheeks often presented a vivid blush. No changes were found in the few cases in which the eye-ground was examined (Dr. Moritz).

The urinary secretion was in part suppressed, in part represented by a fluid of low specific gravity and which had to be removed by means of the catheter. In the algid stage the anuria was typical; the resumption of the renal function constituted a good, though not absolutely favourable prognostic indication. The first urine passed contained for a short time albumin in varying proportion, together with hyaline tube-casts, epithelial cells, colourless and isolated red blood-corpuscles. Persistent albuminuria, with other symptoms of chronic nephritis, was extremely rare; it was present in none of the 376 cases under my care. Reducing substances were, however, sometimes present in the urine passed shortly after the algid stage.

Cutaneous eruptions were relatively common; they mostly resembled the exanthems of measles and urticaria, and were often attended with slight extravasations of blood, so that yellowish spots remained for several days after the disappearance of the eruption; only rarely were they distinctly hemorrhagic, taking the form of petechiæ. They appeared at variable periods in the course of the attack, involved trunk and extremities and were attended with but little itching; their appearance was not associated with any elevation of temperature, and they furnished no prognostic indication.

The temperature likewise afforded no guide in prognosis. Recovery took place in some cases in which the temperature had fallen as low as 93° F.

The stools were flocculent, at times resembling rice-water, at other times stained yellowish; in elderly persons in particular, admixture of blood was common.

Metrorrhagia was frequently observed in women; abortion or premature labour was common in pregnant women. Advanced pregnancy and chronic alcoholism were most unfavourable complications.

True fibrinous pneumonia was encountered but exceptionally, and then unattended with febrile movement. Lobular pneumonia was infrequent; as was also the association with enteric fever and with scarlatina. Diphtheric and septic complications were likewise uncommon.

Full and careful statistics, in course of preparation by Professor Rumpf, Director of Hospitals, will shortly be published, and may be expected to illumine many of these associations and other interesting points.

From a therapeutic point of view the recent epidemic is remarkable for the fact that intravenous infusion was for the first time practised on a most extensive scale in many hundreds of cases, being not infrequently repeated a number of times in a single case. Besides this, subcutaneous infusion had warm

advocates. Landois's method of centripetal arterial infusion was practised alone by Dr. Schede. When it is considered that these various procedures were employed only in the severest cases, the estimated percentage of recoveries (25 per cent.) will appear a fair one.

A 0·6 per cent. solution of sodium chloride was the one most commonly employed; at times a 0·1 per cent. solution of hydrogen dioxide (Dr. Rumpf) was used; less commonly mild antiseptics, such as thymol (Dr. Heinleth), were added to the solutions; in a number of cases slow infusion was conjoined with sweat-baths (Dr. Zippel). The volume of fluid infused varied from two to four pints; the temperature preferably 104° F. Unpleasant complications were not encountered; inflammation at the site of puncture, as well as septic embolism, in consequence of imperfect sterilization of the solutions and apparatus employed, was extremely rare. The immediate result of the infusion was always striking, as a matter of course frequently of but brief duration; renewed vomiting and renewed diarrhœa being followed by a reproduction of the cyanosis, the pulselessness, the dry tongue, and the vox cholerica that had but disappeared.

Of other symptomatic measures hot baths proved efficacious in counteracting the cramps. Enteroclysis, by means of solutions of tannic acid after the method of Cantani, was in some cases attended with remarkable results.

Salol, which was universally used early in the epidemic, proved distinctly not of avail, given either by the mouth or injected beneath the skin in ethereal solution.

Calomel again earned much confidence for itself, and, given frequently in minute doses (gr. $\frac{1}{60}$) or less frequently in larger doses (gr. jss.) often favourably modified the course of the disease.

The other intestinal antiseptics were all soon abandoned. Opium suffered a similar fate; given internally it seemed to do harm; in a small number of cases, given subcutaneously in aqueous solution in small doses, before the occurrence of collapse, it appeared to exert a favourable influence. For the vomiting, cocaine and chloroform, as well as irrigation of the stomach, were frequently employed, with satisfactory results.

When coma had developed (and its occurrence was not prevented by the infusions), all therapeutic measures, including sweat-baths, venesection, infusions, diuretics proved fruitless.

The treatment instituted in the algid stage by Prof. E. Klebs, by means of subcutaneous injections of anticholerin, a metabolic product of bacterial activity like tuberculocidin, and obtained from pure cultures of cholera-bacilli, is worthy of mention, and encourages the hope of further progress upon the same lines.

The injection was followed by an elevation of the temperature during the attack, and a subsequent secondary febrile stage failed to appear. The proportion of recoveries is not at all unfavourable, but the number of cases treated with anticholerin is entirely too small for reliable conclusions to be arrived at.

Of fluids, much coffee, tea, and weak hydrochloric acid lemonade were given; carbonated waters seemed to induce vomiting. Ice was well borne; so also was oatmeal gruel with red wine. Injections of oil of camphor were almost universally employed as a stimulant.

The total mortality in the New General Hospital exceeded 50 per cent. The number of cases received into the various hospitals may be estimated as greater than 8,000.

What has been said in the preceding has been drawn largely from observations made in the New General Hospital and in the infirmary under my care.—*American Journal of the Medical Sciences, February*, 1892, *p.* 115.

7.—SOME PRACTICAL RESULTS OF THE INVESTIGATION OF CHOLERA IN GERMANY.

By William Russell, M.D., F.R.C.P.E., Assistant Physician to the Royal Infirmary, Edinburgh.

In this communication I shall confine myself mainly to the experience of cholera in Berlin, as it was studied there in the Moabit Hospital, and in the barracks attached to the Institut für Infectionskrankheiten, which is under the directorship of Professor Koch. The general facts which I shall give I learnt when there; but since my return I have received papers from Dr. Paul Guttmann, the director of the Moabit Hospital, and Dr. Kossel of Koch's Institute, which give in greater detail the results of their work, and these I shall avail myself of.

I confine myself to Berlin results, as I saw and learnt sufficient there to satisfy my own mind, and because it had the advantage over Hamburg of having so few cases of Asiatic cholera that it was possible to investigate them; while they had many cases of suspected cholera, and it was on the investigation of these that, as it seemed to me, the question largely rested.

I may mention first a fatal case of cholera nostras recorded by Dr. Guttmann, the first fatal case he ever had, and which occurred in July, before Asiatic cholera was known to exist in Germany. The case is recorded in detail, and its clinical picture closely resembles Asiatic cholera; it was regarded as a severe case of

cholera nostras, as it was a solitary one; the stools were examined, and no comma bacilla found. At the autopsy the entire small and large intestine showed the mucous membrane to be in a state of inflammatory redness and swelling. The solitary follicles and Peyer's patches, however, were mostly free of the glands, although some were a little swollen. This comparative freedom from the inflammatory process he regards as anatomical evidence that the case was not Asiatic cholera, with the proviso, however, that when cholera patients die in the stage of cholera-typhoid, death may be so delayed that the inflammatory swelling of the mucous membrane and the follicles may have considerably subsided. The degree and extent to which the colon shared in the inflammatory process he regards as also against the case having been Asiatic cholera. He considers the enlargement of the follicles, especially in the lower part of the ileum, a fact which he noted in the epidemic of 1866, and confirmed by the autopsies of the more recent cases, as characteristic of Asiatic cholera.

Let me now refer to some of the statistics of the Moabit Hospital from 24th August. There were admitted 30 cases of Asiatic cholera, of which 15 died; 2 cases were brought in dead, and were shown by autopsy and bacteriological investigation to belong to this group; 54 cases of cholera nostras, none of which died; 153 cases of diarrhœa, of which 1 died; and 88 cases sent in to be under observation, of which none died. As regards diagnosis, Dr. Guttmann says the severe cases are easy of recognition, although the severe case of cholera nostras already referred to, and a case of antipyrin poisoning which he had, markedly resembled severe Asiatic cholera. With regard to the mild cases his experience was the reverse of this, and amongst the 30 cases there were five such. Some of these had a very suggestive history, persons taken into hospital and placed in the observation wards because they had been in contact with cholera patients, had, after admission, slight diarrhœa, and the stools examined bacteriologically showed the presence of comma bacilli. The prevalence of diarrhœa during and often preceding the appearance of an epidemic of Asiatic cholera is well enough known, and both in this country and elsewhere many of the cases occurring at such a time are spoken of as choleraic diarrhœa. Now while it may have been shrewdly suspected that some of this class of case when accompanying an epidemic of Asiatic cholera were really mild cases of that disease, or, at all events, were the result of the reception of the cholera poison under conditions referable to the virulence of the poison or the resisting power of the individual, still this was not more than a "pious opinion," for no proof was possible. Further, it has been noted that many cases of cholera nostras have a more severe onset than mild cases of undoubted Asiatic cholera, and may be

mistaken for it. Now from this, which is the clinical standpoint, there was no escape, clinical medicine could go no further. Its impotence was manifest. At the Moabit Hospital with abundant material, a capable staff, and great enthusiasm in the work, they had concluded that the bacteriological investigation of the stools separated and differentiated the cases. Out of some hundreds of cases of cholera nostras and diarrhœa they had examined 51, and in not one of these was the comma bacillus found, nor Finkler-Prior's bacillus.

The bearing of this practical conclusion from the work of this hospital alone, the work being done as it was, is of the greatest importance and value as it seems to me. Additional observations from many places may be added to it, and mayhap contradictory evidence may be forthcoming, but the results of investigation at this one spot, under the conditions referred to, can hardly, I think, be other than the illustration of a fact broadly applicable.

If this be the case, the identification of mild cases of Asiatic cholera becomes of the greatest moment. In illustration of this I may refer to the facts of a case admitted into the cholera wards at Koch's Institute a day or two before I left Berlin, and which have since been published by Dr. Kossel; the case turned out to be one of Asiatic cholera, yet for some days before admission the patient, a man, had suffered from diarrhœa, and had deposited his excrement in the water-courses, in quiet nooks in the Thiergarten, and at whatever spot was most convenient when the "calls of nature" became imperative. One almost shudders to think of the foci of possible infection such a case drops amongst a community.

If we now look at the results from Koch's Institute, there were 52 cases of suspected cholera admitted into the barracks there; 2 were cases of Asiatic cholera. The clinical experience here was the same as at the Moabit, namely, that severe cases of cholera nostras were identical with milder cases of Asiastic cholera, and that they could only be separated by bacteriological investigation, but that they could be so separated. An important part of the work done in this laboratory was the examination of intestinal discharges and of soiled clothing sent from other places. According to Dr. Kossel's published figures, 42 such were examined, and of these 19 gave the comma bacillus by culture. Fæcal matter and clothing were often received after having been treated with antiseptics, which of course prevented their thorough examination. I have seen there the most perfect cover-glass preparations of comma bacilli taken from the fæcal soiled clothing sent to the laboratory.

With reference to the investigation of the intestinal discharges I may say a word. The presence of comma bacilli may be demonstrated by cover-glass preparations made from the

discharges, but this is not accepted as sufficient ; plate cultures are made, and on these the characteristic colonies of Koch's comma bacillus are distinguishable under a low power in about 24 hours or even less, and if further proof is required, stab-cultures can be made from the colonies, and the changes effected in the nutrient gelatine followed.

The length of time during which the comma bacillus was present in the discharges was followed in a small number of cases in the Moabit Hospital, with results varying from 5 to 9 days. At Koch's Institute the number of Asiatic cases was too small to base any conclusion upon, but when I was there every motion passed by the Asiatic cases was examined by plate cultures.

With reference to Hamburg, which I also visited, the impression I got was that there had been too many patients to attend to for the staff to spare much time for bacteriological investigation ; still, there they told me they had always found the comma bacillus. The experience gained and the observations made in Hamburg will, I trust, be published ; one of the assistants at the Eppendorf Hospital had made 500 autopsies on cholera cases by the time I was there, and such a series of cases could not fail to add to our knowledge even as regards naked-eye appearances.

A word or two may be said with reference to treatment. At the Moabit they tried salol and creolin and tannin injections with no satisfactory result. Calomel was used both in Berlin and in Hamburg, but I am not in a position to speak of the results. What impressed me most at the Moabit, in the old general Hospital at Hamburg, and in the new one at Eppendorf, was the reliance the staff had in saline injections, and the confidence with which they spoke of it, and the absence of risk which attended the operation. At the Moabit Hospital Dr. Guttmann believed strongly in the subcutaneous introduction of the saline fluid, in Koch's they believed in its intravenous introduction, and in Hamburg I think they had used both methods. The apparatus used was an exceedingly simple one, but great care was paid to everything being properly sterilised.

It is needless for me to dwell upon the practical importance of the acceptance of Koch's comma bacillus as the cause of cholera—it has made the disease a more tangible and comprehensible entity ; it has shown how water, food, and clothing are infected, and become the vehicle for spreading the disease ; and in doing so has shown how it is possible to check and to arrest it, and best of all to prevent it. With Europe threatened by such a plague we place a higher value on this bit of Koch's work, and we place it amongst the great discoveries.—*Edinburgh Medical Journal, December*, 1892, *p.* 522.

8.—INJECTIONS AGAINST CHOLERA.

By M. Haffkine.

[We venture to reproduce here the larger part of *The Lancet's* special report of this interesting event.]

M. Haffkine, who has been on a visit to this country and has made some demonstrations at Netley Hospital of his method of inoculating a modified cholera virus as a protective against cholera, was, prior to his departure to India to study cholera in that country, invited to give at the Laboratories of the Royal College of Physicians and Surgeons a demonstration of his method of procedure.

The experience acquired in the endeavour to prevent hydrophobia by inoculation—the first human disease treated according to the new method—led to the formation of a perfectly clear programme, to be followed by investigators in the direction in question. It was shown that success was to be arrived at through the preparation of a virus gradually increasing in strength according to a fixed scale until it reached a degree of virulence above that of the ordinary virus, which would allow of the organism becoming accustomed to the poison with which it was infected. The *traitement intensif* of hydrophobia, based upon the acquisition of a virus of maximum strength, has shown the true *rôle* of the virus kept in a fixed state of "exaltation" by specially appropriate experiments. The acquisition of virus of this kind and the establishment of a method suitable for keeping it in a fixed state are the ultimate aims of the research for a vaccine, since it is essential gradually to accustom the organism under treatment to this fixed virus. It is known that this task may be accomplished by the transference of infective organisms through a series of animals and that it is by cultivating it through a long series of such living animals that the microbe acquires the maximum of its infective power.

In the case of cholera the first attempts towards the solution of this problem began with the infection of animals through the digestive canal. In this way the culture of the microbe took place in a part in which other microbes existed, which fact from the first rendered the means employed uncertain. The result of the introduction of a microbe into such parts depends upon the nature of the microbe. The purification of the microbe by intermediate artificial culture made in transmission between two animals is a source of diminution of virulence which counterbalances the exaltation obtained. This explains how MM. Pfeiffer and Nocht in seeking to strengthen the cholera microbe by passing it alternately through animals and cultures were not able to obtain a microbe capable of overcoming the

natural resistance of birds ; and this is the reason why M. Roux and myself (M. Haffkine), in trying to transfer the intestinal contents from one animal directly to another according to the method used by Gamaleia, have seen our series broken after the third or fourth transference.

The virus when injected under the skin of a healthy animal gives the creature, after several days, immunity from the poison of cholera, however it may be conveyed to it. If an attempt be made to infect an animal which has been so treated, either by Koch's method through the alimentary canal, by neutralisation of the gastric juice and the injection of opium into the peritoneum by the introduction of the microbe into the intestines by the method of Nicati and Rietsch, through the muscles, or by (the most fatal of all) intra-peritoneal injection, the animal resists, whilst the control animals are killed. Inoculation of animals against cholera in this manner has been definitely established. But the operation thus described cannot be applied to man. The wound following on the injection under the skin is alarming to look at, and is in all probability painful. Besides, although it does not in itself present any danger to the health of the individual, it subjects him to all the dangers arising from an open wound. By growing it at a temperature of 39° C. and in an atmosphere freely exposed to the air this corrosive action is removed from the microbe. Under these conditions the first crop of the cholera microbes die rapidly, say in from two to three days; but others are sown again in new centres immediately before the death of the first. After a series of generations of this kind a culture is obtained which, if injected under the skin of animals even in very large doses, produces merely a temporary œdema and so prepares the inoculated organism that the injection of this modified virus of fixed exalted vaccine produces only a local reaction of the slightest kind. Thus the method of inoculation deals with two vaccines—a mild one obtained by weakening the fixed virus, and a strengthened vaccine which is really the exalted virus itself. The reason an ordinary virus is not used to obtain the weakened vaccine, but one the nature of which has been previously ascertained in the laboratory, is that the viruses in their natural state, especially when they have reached a saprophytic stage of development, present such great differences that there is no certainty in their application. This recalls to mind the story of inoculation for small-pox. The mildness or the severity of an infection does not depend merely on the real strength of the contagious substance, but upon the resistance of the individual from whom the poison has been taken. Thus in taking vaccine for use as vaccine lymph from a subject slightly affected a very weak substance was sometimes obtained incapable

of causing protection, but still able to kill individuals less resistant. The great point of Jenner's discovery lay in the fact that it indicated a substance fixed by successive passages through animals at a virulence above that which is fatal to human beings. Another example is given in the old method of inoculation against anthrax by Toussaint, the first of its kind, which has had to give way to the method of M. Pasteur simply because Pasteur's method was based upon a virus of fixed strength and produced results with certainty, conditions which were wanting in the former method. In 1885 Dr. Ferran, of Barcelona, with the object of preserving the population of the Peninsula from cholera, injected his patients with the ordinary virus taken from dead bodies and cultivated in the laboratory. The statistics of the results obtained by him were so uncertain that it could not be recommended. The fundamental feature of the Pasteurian method was the possibility of treating the animal organism by vaccines of an absolutely fixed nature by means of special operations. That was the whole secret and the sole guarantee of the success of its application.

The method of inoculation against cholera worked out by experiments on guinea-pigs was afterwards tried upon rabbits and pigeons before it was applied to man. These animals were chosen in order to secure very differently organised subjects, and to obtain the power of generalising the conclusions before extending the experiments to human beings. The same results were obtained on all these animals and it was decided to apply the operation to man. The symptoms produced by this operation have been described in several scientific publications. The method has been tried at Paris, at Cherbourg and at Moscow on about fifty persons of both sexes, between the ages of nineteen and sixty-three, of French, Swiss, Russian, English, and American nationalities. [M. Haffkine was the first to be inoculated with his own virus. He has undergone the operation three times.]

In all cases the method has proved to be absolutely harmless to health. The symptoms consisted merely of a rise of temperature, a local sensitiveness at the place of inoculation and the formation of a temporary swelling at the same place. The symptoms appear about two or three hours after inoculation—viz., fever and general indisposition, which disappear in from twenty-four to thirty-six hours, and sensitiveness and œdema lasting three or four days. The symptoms following the second inoculation are usually more marked but of shorter duration; the whole giving rise to a feeling as of a bad cold in the head, lasting from one to two days. The microbes which are introduced under the skin do not propagate, but die and disappear after a certain time. It is the substances which they contain

which being set free on the death of the animals act upon the animal organism and confer immunity upon it. It is found that the same result can be obtained if the microbes be killed before inoculation. Thus vaccines have been preserved in weak solutions of carbolic acid in which the microbes die at the end of several hours, and the vaccine preserved in this way has been found to be still efficacious six months after its preparation. There is evidently considerable advantage in preserving the microbes in this way. It enables them to be used by persons having no bacteriological training, and the absence of living germs makes the vaccines perfectly safe. The carbolic acid that they contain preserves them against any invasion of other microbes, and as they can be kept for several months their preparation may be carried out at a central laboratory whence the vaccine *ampoules* can be sent out to operators. But it is probable that the immunity given by these preserved vaccines does not equal in persistency that produced by living germs, and as the method is not yet supported by verified statistics it is better that inoculations should be made as much as possible with living virus, so as to secure the most reliable results.

As to the length of time that immunity so produced will last, there were no animals at the laboratory of the Pasteur Institute that had been inoculated for a period longer than four months and a half. At the end of that time their immunity was found to be perfect and was likely to last much longer. The experiments upon man, added to the hundreds of experiments which had been made upon animals, testify to the absolutely harmless nature of these operations, and there is no difficulty in proving their efficacy by experiment, independently of the species of animal which may be employed.

Dr. Woodhead has inoculated six animals with the first vaccine. The second inoculation was made five days after. The following day, in presence of Dr. Woodhead and several other gentlemen, these six animals were inoculated with 6 c.c. of virus of the cholera culture into the peritoneum. At the same time six other animals, which had not been inoculated before, were injected with half the dose which the first set of animals had received. The result is that the first inoculated animals are now perfectly well; the others died. To anyone accustomed to the clinical appearance of guinea-pigs after inoculation the animals appear to have a perfectly normal appearance.

It is unnecessary to say that we cannot perform a similar experiment on man, although this would be the only means by which a definite experimental demonstration could be given. This being the case, evidently the objection might be raised that, although this vaccination renders guinea-pigs, rabbits and

pigeons very resistant, yet it might be possible that man might escape this law. That, indeed, is not impossible, and—we lay stress, much stress, upon the fact—it is by experiment that our method must be established. It is by direct application and experiment that we must verify to ourselves and others the true value of the means extolled. Yet after the experience already acquired, we think there is little probability that a negative result will be obtained. The difference between a mammal like the rabbit or the guinea-pig and a bird like the pigeon, from an anatomical and physiological point of view, is much greater than between rodents and man. Hence, when the same law is proved to exist among animals so different, there is little probability that man is not also subject to it. The symptoms following on inoculation of our vaccines are analogous in all the animals experimented on, including man. The same changes of temperature take place in all. In the animals which have been rendered resistant against cholera immunity is evidenced by the fact that every subcutaneous inoculation, made even with weakened virus, induces a rise of temperature greater than the preceding. The same thing takes place in man. We hope that the parallel will extend to this modification of the organism which produces the resistance against an infective agent. But the sole and definitive confirmation of this hope can be obtained only by the application of the method where cholera makes ravages amongst the human race.

Guinea-pigs were exhibited to show the effects on the animals when inoculated under the skin and when inoculated into the peritoneal cavity. The difference between the effects of the strong virus and the weak virus was also demonstrated. One of the animals was inoculated five days previously with one-tenth part of the tube of the weak vaccine. If examined it would be found that it had, at the point of inoculation, a small localised œdema, but there was nothing resembling abscess or anything of the sort. It would disappear in a very few days. On the other hand, another animal was inoculated the same day at the same time, subcutaneously also, with the stronger vaccine, and it was found that a very definite little abscess was formed, that the skin was necrosed over its surface, and that it would take some time to heal. Another animal inoculated with the same quantity of virus into the peritoneal cavity died within from sixteen to twenty-four hours. The experiment on the one which had received the weak vaccine would be continued. The result would be that when it was inoculated again the abscess as shown in the other animal would not form. That was the reason why these two vaccines were used in inoculating man. The first produced a slight œdema, but it did not produce an abscess, and when they used the strong virus after the weak one,

instead of producing an abscess, they simply got a small swelling which disappeared in a few days. Since M. Haffkine had been in England two gentlemen, one of whom had proceeded into a dangerous part of Persia, the other being a medical officer of health near London, had been inoculated by him. The following is a clinical report on one of these gentlemen, taken by his son, who is a medical man and a pathologist. The notes were as follows :—"The first inoculation was made on Feb. 4th, 1893. The gentleman in question is fifty-six years old. Temperature at the time of inoculation 97° F. under the axilla. After three hours slight lassitude set in. At 5 p.m. slight pain in the side; temperature 98° F. in the mouth; seat of inoculation red, indurated, two inches by two. At 7 p.m., temperature 99° F. At 9 p.m. lassitude increased; took a slight dinner. The son notices that his father looks markedly febrile, feels tired and goes to bed; temperature 99°; pulse increased to about 80; feels slightly cold and there is slight pain in the limbs. At 10.30 slept well since going to bed; temperature 99°; respiration above normal. Soon went to sleep again and passed very good night. Feb. 6th, 9 a.m., temperature 98°; appetite not so good as usual; was quite able to resume usual duties; symptoms by no means severe; the most remarkable phenomena are the onset and the feeling of lassitude and sleepiness. At 11.40, temperature 99°. Feb. 6th, morning temperature 98°, evening 97°. Feb. 8th, morning temperature 97°; evening 97·5°. Feb. 8th, morning temperature 97·5°. The second inoculation was made to-day." The notes in the case of the other gentleman had unfortunately been lost, but practically the same result ensued. This gentleman summed up his experience by declaring that he would rather be inoculated against cholera than be vaccinated again. M. Haffkine made a post-mortem examination of one of these inoculated animals that had succumbed to the intra-peritoneal injection of the exalted virus, and the pathological appearances as shown in guinea-pigs were demonstrated. There was a red injected spot showing that a portion of the inoculation had entered the muscular tissue. The abdomen was distinctly distended and contained serous fluid. The bowels were red and injected much more than is usual in guinea-pigs. All the other organs were normal. On the liver, between the diaphragm and that organ, slight traces of lymph could be seen. The spleen, if the animal lives for a certain length of time, is slightly enlarged; in this case the spleen was distinctly enlarged, the animal having lived twenty-four hours. The cultures from which all these experiments were made were from a case of cholera which occurred in Cochin China, and were forwarded direct to M. Haffkine.—*The Lancet, February* 11, 1893, *p.* 316.

9. ON HAFFKINE'S METHOD OF VACCINATION AGAINST CHOLERA.

By A. E. Wright, M.D., Professor of Pathology, and Surgeon-Captain D. Bruce, M.D., Assistant-Professor of Pathology, Army Medical School, Netley.

It may perhaps conduce to clearness of exposition if we present the facts of cholera vaccinations in their relation to certain broad generalisations which have been made in connection with the subject of microbial infective processes.

Microbial infections are conveniently subdivided into "septicæmias" and "intoxications." In the case of the former the bacteria multiply freely in the blood and produce their poisons there. In the case of the latter the micro-organisms do not proliferate in the blood, but bacterial poisons become absorbed into the system from some point—generally a point on the inner or the outer surface of the body—at which the bacteria have effected a lodgment. Asiatic cholera belongs to the latter class of infective diseases, for the specific organisms which set up the disease are strictly confined to the alimentary canal. They are never found in the tissues, and they are very rapidly killed off when they are artificially introduced either into the blood or into the hypodermic tissue. For these reasons we may characterise the system as "bacteria proof" with respect to the specific organisms of Asiatic cholera. On the other hand, both experiment and clinical observation establish that the system is acutely susceptible to the poisons which are generated by the comma bacilli in the intestine. In view of the above facts, it will readily be understood that immunity against cholera can only be brought about by rendering the system "poison proof" (*gift-fest*) with respect to the poisons of the cholera bacillus.

M. Haffkine's method of anticholeraic vaccination consists in such a process of chemical vaccination. The protection against cholera is brought about by acclimatising the system first to a weak cholera poison (first vaccine), and afterwards to a strong cholera poison (second vaccine). For adequate protection it is essential that this second vaccine should consist of the strongest obtainable cholera poisons.

The object which M. Haffkine's vaccination has in view is to enable the system to tolerate such quantities of cholera poisons as might be expected to be absorbed from the intestine during the interval which elapses between the invasion of the alimentary canal by the comma bacillus and the natural elimination of that bacillus, which invariably takes place when convalescence

becomes established after an attack of cholera. It is to be noted that M. Haffkine's vaccination does not aim at the impossible task of establishing a complete tolerance for an indefinitely large quantity of cholera poisons. It is indeed evident that if no reaction took place on the part of the cholera patient the cholera bacillus would not be dislodged from the intestinal canal, and its indefinite multiplication there would give rise to such an enormous amount of cholera poisons that it would be hopeless to attempt to cope with them. Under such circumstances the vaccinated patient would succumb with the same certainty as the unvaccinated patient, though he might hold out for a few hours longer. Seeing, however, that the system possesses this power of reaction to the invasion of the cholera bacillus, it would probably suffice for all practical purposes if a sufficient tolerance of the cholera poison could be induced to enable the system to put forth its whole reactive power. This, therefore, is the object aimed at in M. Haffkine's method of anticholeraic vaccination. The utility of the method will evidently entirely depend upon whether the tolerance of the cholera poison which can be induced in man by means of M. Haffkine's method is adequate to tide over the critical hours which supervene upon the outbreak of choleraic symptoms. This is a question upon which only actual clinical experience can decide. In the meantime, it is evident that a trial of the method ought to be made if the following three propositions can be established : (1) That the principle of the proposed vaccination is theoretically sound; (2) that the method confers a very high degree of tolerance upon animals; (3) that the vaccinations upon man are innocuous. We have already endeavoured to establish the first of these propositions. With regard to the second, we might have recourse for our facts to the published experiments of Haffkine, Iawein, and Tamacheff, in which it has been demonstrated that guinea-pigs vaccinated according to Haffkine's method acquired a tolerance to as much as sixteen times the lethal dose of cholera virus. Instead of doing this we propose to give the protocol of an experiment which we performed with M. Haffkine's kind assistance, with a view to satisfy ourselves that tolerance of the cholera virus could be established by M. Haffkine's method of vaccination. The experiment itself was as follows :—

Guinea-Pig 1.—Vaccinated with carbolised first vaccine on January 17th, 1893; vaccinated with carbolised second vaccine on January 20th, 1893; inoculated intraperitoneally with 1-6 tube of exalted virus January 23rd, 1893. Result : Died on morning of January 25th, 1893.

Guinea-Pig 2.—Vaccinated with carbolised first vaccine on January 17th, 1893; vaccinated with carbolised second vaccine on January 20th, 1893; inoculated intraperitoneally with 1-8

tube of exalted cholera virus on January 23rd, 1893. Result: Alive and thoroughly recovered from cholera inoculation on January 24th, 1893.

Guinea-Pig 3.—Vaccinations and cholera inoculation exactly the same as in the case of guinea-pig 2. Result: Alive and thoroughly recovered from the effect of cholera inoculation on January 24th, 1893.

Control animals (which were all of larger size than the vaccinated guinea-pigs). Guinea-Pig 4.—Received an intraperitoneal injection of 1-8 tube of exalted virus on January 23rd, 1893. Result: Dead by next morning.

Guinea-Pig 5.—Received an intraperitoneal inoculation of 1-16 tube of exalted cholera virus on January 23rd, 1893. Result: Dead by next morning.

Guinea-Pig 6.—Received an intraperitoneal inoculation of 1-32 tube of exalted virus on January 23rd, 1893. Dead on morning of January 25th, 1893.

It will be seen that in this experiment the lethal dose for the vaccinated guinea-pig was more than five times as large as the lethal dose for the unvaccinated guinea-pig (1-6 tube as compared with 1-32 tube). Further, it will be seen that almost complete tolerance has been established by these vaccinations for four times the lethal dose of cholera virus (1-8 tube tolerated by the vaccinated guinea-pigs as compared with 1-32 tube lethal for the unvaccinated guinea-pig).

In view of these striking results, it is evident that M. Haffkine's vaccinations do establish a high degree of tolerance for cholera poison in the case of guinea-pigs. M. Haffkine has shown that a similar tolerance for the exalted cholera virus can be established in the case of rabbits and pigeons.

With regard to our third proposition, which deals with the innocuousness of the cholera vaccinations on man, we need not do more than refer to the fact that M. Haffkine has already performed some fifty vaccinations on man without producing anything more than a general sense of *malaise* and a certain amount of local œdema and tenderness round the seat of the vaccination. It is perhaps worth mentioning in this connection that minute and detailed observations on these subjects were made by each and all of M. Haffkine's "patients." With regard to the dose of cholera poisons which is inoculated subcutaneously in man, M. Haffkine has, in the absence of clinical observations upon the subject, in all cases employed the doses of virus which he found would convey a high degree of tolerance in guinea-pigs. These doses consist of one-sixth to one-eighth of the emulsion prepared from a single day's growth of cholera on a standard tube of agar-agar, kept at a temperature of 35° C.—*British Medical Journal, February* 4, 1893, *p.* 227.

10.—MYXŒDEMA, WITH ENLARGED THYROID, TREATED BY SUBCUTANEOUS INJECTIONS OF THYROID EXTRACT: RECOVERY.

By J. G. G. Corkhill, M.B.

The patient, whose case is related below, came under observation early in May, when she enjoyed good health, but later, after over-taxing of the nervous system, debility and anæmia with a very much enlarged thyroid, developed suddenly in forty-eight hours, becoming so tense as to cause a sensation of suffocation.

At that time I thought I had to deal with a case of exophthalmic goître, so large was the thyroid. There were then no signs of myxœdema. There then seemed to be no difficulty in accepting the overtaxing of the nervous system by the excessive bodily fatigue which immediately preceded the onset as the cause. The nature of the enlargement was entirely vascular; there was a *bruit* audible everywhere over its surface, and when the patient was emotional or worried it invariably increased in size. There is great difficulty in establishing the relation of the swelled thyroid to the other symptoms; since, though the swelling was very tense, I cannot think that this would altogether suspend the functions of the gland. Should this be impossible, then we are forced to the conclusion that a vascular enlargement of the gland may take place, masking the true condition of the gland proper, and in fact occur accidentally, and having no relation whatever to the disease.

Treatment.—Subcutaneous injections of the extract of thyroid gland (obtained from Messrs. Brady and Martin) of ℥xv. each were given, three times a week, in the interscapular region, and no precautions were taken after the first two or three minims had been injected. No untoward result, generally or locally, occurred.

Mrs. I. B., aged 32, married, complained of a painful swelling in the neck, great weakness, irritability, disinclination for work, loss of memory and slowness of speech, and swelling all over her body, arms, and legs. The family history was very good, and her previous history was generally good. She had had ague two years and a half ago, and a premature confinement. Twelve months later she had a healthy child at term. Her general health was very good until May, 1892. Then she became very fatigued, grew pale, and the legs swelled. In the course of two days a sensation of tightness came on in the throat, and a large swelling appeared in the neck. She was unable to walk more than a quarter of a mile without great exhaustion. She grew worse, and palpitation was very bad.

On September 20th she presented the usual symptoms of myxœdema, much pallor, with slight blush on the cheeks, swelling of both eyelids; the whole of the triangular spaces of the neck were filled up, especially in the suprascapular region; the hands, feet, and legs were very much swelled, with no pitting on pressure anywhere. The hair was thin and falling out, and the scalp scurfy. The thyroid gland was almost four times the ordinary size; speech slow, and she "required time to think." Digestion good; the heart normal; the urine pale, specific gravity 1020, and did not contain albumen nor sugar

On September 24th the neck over the enlarged thyroid was painted with lin. iodi. and the first injection of the extract of thyroid gland was given. A steady improvement took place, as indicated by the loss of weight: September 23rd, 9 st.; September 30th, 9 st.; October 8th, 8 st. 8 lbs.; October 14th, 8 st. 4½ lbs.; October 21st, 8 st. 2 lbs.; October 28th, 8 st. 2 lbs.; November 4th, 8 st. 1¼ lbs.; November 11th, 7 st. 13½ lbs.; November 18th, 7 st. 13½ lbs.

On November 18th the whole of the swellings had entirely disappeared, and the skin had resumed its normal softness; she was now quite bright and quick as before the attack; the hair still thin, though the scalp was free from scurf. The thyroid was about half its previous size, though still enlarged. She looked healthy, and was no longer anæmic.—*British Medical Journal, January* 7, 1893, *p.* 9.

11.—A CASE OF MYXŒDEMA TREATED BY TAKING EXTRACT OF THYROID BY THE MOUTH.

By E. L. Fox, M.D., M.R.C.P., Plymouth.

E. M., aged 49, came under my care at the Plymouth Dispensary in March last. She at that time exhibited all the typical symptoms of a well-marked case of myxœdema. I showed her at a meeting of the Plymouth Medical Society, and consent was unanimous in favour of myxœdema.

The disadvantages of having to treat cases of myxœdema by continued hypodermic injections are many and obvious. I was therefore induced to try the effect of thyroid extract when taken by the mouth. I directed the patient how to prepare a glycerine extract of half a sheep's thyroid, on much the same lines as laid down by Dr. Murray. Of the extract thus prepared she was to take half one hour before breakfast and the remainder one hour before supper, and to continue doing so twice a week.

She commenced the treatment on June 2nd. On July 11th she showed very visible signs of improvement; her facial expression was decidedly brighter, her speech was better, and she felt generally much stronger.

On September 12th the improvement had continued. The skin was soft and perspired freely: the œdema was much less. She was ordered to take half a thyroid, lightly fried and minced, to be taken with currant jelly once a week, and to continue taking the extract once a week. By mistake she took the minced gland twice a week for a fortnight; she then noticed she was getting rapidly weaker, profuse perspirations breaking out on the least exertion; she was unable to walk or stand steadily. She left off taking the gland on September 22nd and began rapidly to recover her strength.

On October 17th she considered herself well, and better than she was two years ago when the symptoms of myxœdema first began. Her condition now is in every way satisfactory. Her face has assumed its ordinary proportions, her speech is normal, the œdema has gone, and menstruation has returned.

I have reported this case, as the method of administering the remedy is simple in the extreme, and in my case, at all events, the result has been satisfactory. If I had another case to treat I should begin with small doses of the minced gland, as that seems to be more potent, gives less trouble in preparation, and is preferred by the patient.—*British Medical Journal*, *October* 29, 1892, *p.* 941.

12.—ON MYXŒDEMA AND THE RECENT ADVANCES IN ITS TREATMENT.

By H. W. G. MacKenzie, M.D., F.R.C.P., Assistant Physician to the Royal Free Hospital.

By far the most complete and valuable account of the disease which has yet appeared was published in 1888. I refer to the report of a committee of the Clinical Society of London, under the presidency of Dr. Ord, to whom we are indebted not only for the name by which the disease is now universally designated, but also for a great deal of what is known of its symptoms and pathology. The report practically proved the identity of myxœdema, sporadic cretinism and the condition called by Kocher "cachexia strumipriva," which has been observed to develop after the total extirpation of the thyroid gland. It will necessarily rank as the standard work of reference on the subject for many years to come.

The incidence of the disease is in adults usually between thirty and sixty-five. At one time it was thought that the female sex alone suffered from it, but it is found also to occur in males, although more rarely. It occasionally attacks several members of the same family, which may result either from some common inherited tendency or from exposure to a common cause. It is invariably associated with atrophy of the thyroid gland, but what causes this atrophy is at present quite unknown.

When the malady is fully developed there is considerable increase in the bulk and weight of the body. The physiognomy undergoes a very marked alteration, and those affected have a strong family likeness to one another, their features assuming a placid, mask-like form of expression. The eyebrows are elevated, the eyelids puffy and the nostrils broadened; the lower lip is thickened, everted and livid, while the cheeks show a well-defined red patch, contrasting strongly with the pallor of the eyelids. The skin is dry and non-perspiring, scaly, branny and downless. The hair is dry and crisp, and frequently very scanty, not only over the scalp but on the eyebrows, in the axillæ, &c. The subcutaneous tissue is swollen, especially in the hands, feet, and legs, giving one the impression of œdema, but not pitting on pressure. There is usually fulness in the supra-clavicular regions; the gums are swollen and spongy, the teeth carious; the tongue, uvula and soft palate are swollen. The temperature is almost invariably subnormal and the patient suffers considerably from a subjective feeling of coldness. The patient is peculiarly slow in apprehension, thought and action, and is clumsy. Moreover the patient is quite aware of her slowness. Her memory is usually impaired for recent events. She is irritable or placid or alternately the one and the other. Her speech alone is frequently so characteristic as of itself to betray the malady. It is slow, monotonous and deliberate, and there is sometimes so much persistence in idea that there is great difficulty in changing the subject or in terminating the conversation. Sensation may be markedly retarded. Hearing, smell and taste may be impaired or otherwise abnormal. The patient may suffer from frontal or occipital headache, rheumatic pains or numbness or tingling in the extremities. There is frequently a certain amount of incoordination and the legs may give way unexpectedly. Sometimes the patient suffers from cramps. The pulse is usually weak, soft and slow. There is a tendency to hemorrhage from the throat, gums, nose and uterus. The urine is generally of low specific gravity and at a late stage usually contains albumen. All the symptoms undergo aggravation in cold weather.

The course of the disease is slowly progressive, although in some cases periods of remission have been noted. In one case

the disease is said to have disappeared during two successive pregnancies and in another its symptoms diminished under the same circumstances. In one case recovery, it is alleged, occurred after two years and a half. Such a result is, however, most unusual. As a rule while life lasts it is a burden. Many of the patients end their days in asylums. Some are carried off by phthisis or other intercurrent disease, while the remainder die sooner or later from the disease itself.

The characteristic morbid changes found after death are few. As a rule the subcutaneous fat and often that elsewhere is over-abundant. Passive effusions into the serous cavities and slight anasarca are not infrequent. The thyroid gland is in every case atrophied. Although the kidneys, lungs, heart or arteries may be diseased there is no change in them peculiar to myxœdema. Distinct histological changes are limited to the skin and thyroid gland. In the skin there is swelling of the epithelium of the tubes of the sweat and sebaceous glands and obliteration of their lumen, with nucleated fibrous growth in the surrounding tissues. In the thyroid gland in the earlier stages there is a small-celled infiltration of the walls of the vesicles, accompanied or followed by epithelial proliferation in their interior, and in the later stages the gland becomes converted into a delicate fibrous tissue, in which the remains of the vesicles are represented by clumps of small round cells.

Dr. Semon, struck by the resemblance of the train of symptoms observed by Kocher to follow after complete thyroidectomy, had first brought the matter forward in this country and by indefatigable energy was principally instrumental in collecting the vast amount of evidence tending to prove the identity of this cachexia with myxœdema. Professor Horsley, by numerous laborious experiments, showed the close resemblance of the dyscrasia produced in some of the lower animals by the removal of the thyroid gland to human myxœdema. The result of these investigations amounted to a proof that the one thing lacking in the myxœdematous condition was a functionally active thyroid gland. Professor Schiff and others after him had shown that the evil effects of thyroidectomy in animals could be diminished by transplanting a thyroid gland previously to the operation. This important observation Professor Horsley followed up by suggesting a similar procedure as a possible means of arresting the progress of myxœdema. This suggestion was accordingly soon carried into execution and the operation was attended with striking but unfortunately only very limited and temporary improvement. The fact of improvement at all was, however, encouraging. The benefit resulted so soon after the operation that it could be explained only by the absorption of some substance actually

present in the gland at the time of transplantation. I have not seen any explanation of the curious fact of the great amelioration of the disease during pregnancy to which I have already alluded, and it seems to me likely that the thyroid of the fœtus supplied for a time the place of that of the mother, the benefit naturally terminating with delivery.

The next step was the employment of hypodermic injections of a glycerine extract prepared from thyroid glands, first in animals after thyroidectomy, and secondly in myxœdema. The fact of its usefulness in animals, with which the names of Vassale and Gley are associated, suggested to Brown Séquard and d'Arsonval its probable utility in myxœdema; but, apparently quite independently, the idea of its use seems to have occurred to Dr. George Murray of Newcastle, who was amongst the first, if not actually the first, to employ this mode of treatment, and certainly the first to prove its success. By Dr. Murray's method very beneficial results were soon obtained by other physicians, and numerous reports of cases successfully treated by it appeared in the medical journals and in the transactions of the medical societies. But, excellent as these results were, the method was not altogether free from objection. Some sensitive patients shrank from the hypodermic needle. Unless the fluid used for injection was absolutely aseptic subcutaneous abscesses and indurated swellings were apt to follow the injections. It was also found that rather alarming symptoms, such as lividity, pain, loss of consciousness, temporary loss of power in the extremities or general muscular spasm, sometimes supervened during or immediately after the administration of the injection. The difficulty with which the physician had to contend when he prepared the extract himself has been removed and the risk of the occurrence of septic abscesses has been greatly lessened by the enterprise of Messrs. Brady and Martin of Newcastle, who now prepare weekly a sterilised extract which they supply at a moderate cost considering the care required in its preparation. Putting the risk of local effects apart, however, I cannot but consider the even rare occurrence of such unpleasant symptoms as I have mentioned a serious drawback when a long series of injections has to be taken into account.

The next advance was the discovery which I made that the administration by the mouth of the thyroid gland or of a preparation derived from it served the same purpose as hypodermic injections of thyroid extract—in fact, had all its advantages without any of its disadvantages. By a curious coincidence the same discovery was made about the same time quite independently by Dr. E. L. Fox of Plymouth, and an account of his case appeared simultaneously with that of mine.

My patient was thirty-seven years of age, but from her appearance she might have very well passed for fifty. At that time the disease had been fully established for two years. In July last year she was admitted for the third time and the success which has followed what was an untried treatment more than compensates for the disappointment on the two previous occasions.

During the two years and a half we had been watching the patient the disease had been slowly but steadily progressing.

When I admitted the patient last July it was with the full intention of treating her by the hypodermic method. I was, however, deterred from doing so by observing that in one patient treated in this way a local abscess and pleurisy followed, while in others local discomfort and indurated swellings occurred. It was not long before I determined to try a new method and I therefore ordered two sheeps' thyroid glands to be obtained fresh from the butcher and to be given to the patient finely minced every day. I purposely ordered a full dose because I thought if the glands were active at all when given in this way the action would be much slighter than when the juice was given hypodermically. The effect of the administration of the minced glands on the temperature and on the sensations of the patient was almost immediate. The temperature became normal or even a little above normal, while a comfortable sensation of warmth pervaded the patient's body. Although I had ordered the glands to be given every day she did not have them nearly so frequently, as they were not given if there was the least suspicion of staleness about them. During the first fortnight the patient had had eight thyroids and two drachms of thyroid extract by the mouth. By the end of that time her appearance had very considerably altered for the better. Her pulse rate, however, had quite doubled its former rate, having risen from an average of 56 to 116. The rapidity of pulse persisting, I discontinued the thyroid for a time, when the rate gradually fell to about 80. The patient from time to time was troubled with vomiting, and this—as it sometimes occurred after the thyroid glands—I was at first inclined to attribute to the knowledge she had that she was taking something raw and the nausea induced thereby. Experience of other cases has, however, convinced me that vomiting, like increased frequency of the pulse, is a sign that too much of the remedy is being administered and is the indication for its temporary cessation. If the remedy is pushed vomiting may become an exceedingly troublesome complication. The progress of the patient was in every other way completely satisfactory, and the rapid manner in which improvement manifested itself was one of the most striking features of the case. The change in the face was an

early result. It seemed, indeed, as if a mask had been removed from it. The alteration in the hands and feet soon followed. About six weeks after the treatment was started the hands and feet desquamated as completely as after scarlet fever and a delicate, soft skin replaced the former thick, coarse cuticle. With the rapid loss of bulk there was an equally rapid loss of weight, so that there was a difference of two stones in two months. The improvement in the mental condition and in the speech set in almost as early as the physical changes. One of the most striking changes was that in the hair and this became noticeable a little later than the other events. About two months after the treatment was started, I found a very thick growth of hair was beginning to appear on the scalp, and now from the different length of the new and the old hair it can be seen what a quantity of new hair has grown. When the patient commenced to get about again after being confined to bed so long she was for a time troubled with slight œdema of the feet and legs, which it will be remembered she had to a much greater degree at the time the treatment was commenced. The œdema, however, soon disappeared as the heart got stronger. During the first month or two the mode of administration of the gland which was adopted was extremely simple. I have already mentioned that the finely minced gland was taken with a small quantity of brandy or beef-tea. Latterly the nurse has prepared it a little differently. After mincing it she lets it stand for about half an hour with a few teaspoonfuls of water, and then strains the whole, squeezing the juice through a piece of linen or muslin. The expressed fluid is added to some beef tea. This home-made extract appears sufficiently potent to keep our patient in good health, although she only has it once a week. The gland has also been given lightly fried in some cases without destroying its good effects, but it is extremely probable that thorough cooking will be found to render it inert.

Later experience has confirmed my surmise that much less of the remedy is required than I at first employed. A gland or half a gland or the extract therefrom twice a week is as much as it seems advisable to commence with, and at a later period the same amount once a week appears to be sufficient.

In order to have the remedy in an ideal form it should be palatable, easily procurable and cheap. It would therefore be a great desideratum to be able to manufacture on a large scale a permanent preparation from thyroid glands in a less costly manner than that necessary in the case of the extract prepared for hypodermic use. Mr. White, the able pharmaceutist of St. Thomas's Hospital, has for some time been working with this end in view and he has succeeded in preparing a powder which is tasteless, keeps perfectly, and, as far as it has been tried,

apparently answers very well. One of the patients in the ward is being treated with this preparation and her progress so far is perfectly satisfactory. Should this powder fulfil our expectations then I think the treatment will have advanced as far as we can possibly expect it to do.—*The Lancet, January* 21, 1893, *p.* 123.

13.—ON THE TREATMENT OF ANÆMIA AND CHLOROSIS BY THE CHIEF IRON PREPARATIONS IN USE.

By Andrew Smart, M.D., Physician to the Edinburgh Royal Infirmary.

[Dr. Smart appends the following conclusions to an interesting clinical paper :]

1. *Sulphate of iron.*—Of the varieties of iron used in the trials here recorded, the best results have been obtained from the sulphate. This accords with previous experience. It is the preparation which undoubtedly possesses the greatest therapeutical activity, and the one which in the different varieties of the disease and constitutional differences of the anæmic patients may most uniformly be depended upon for satisfactory results. In anæmic patients who suffer markedly, as many of them do, from atonic dyspepsia, and in whom consequently the hydrochloric acid is either greatly deficient or absent, it is of great advantage to their recovery to prescribe from fifteen to twenty-five minims of dilute hydrochloric acid shortly before meals, the iron salt being taken shortly after meals. But on the contrary, to those patients whose stomach complaints are of an opposite nature, being due to excess of acid (pyrosis), acid in any form cannot be given ; the substitution of ten grains each of bicarbonate of soda and carbonate of potash before meals will be of material assistance to the stomach by inducing tolerance of the iron and thereby expediting recovery. In assigning the first place to the iron sulphate as a remedy, I am guided by the whole of the circumstances connected with each of the cases in which the trials were made. As a remedy, it is exceptionally active in restoring the deficient corpuscles, alike in their number and character, and is also notably active in restoring the hæmoglobin in chlorosis.

2. *Carbonate of iron (saccharine).*—Numerous trials with this preparation were uniformly of a favourable character in the different types and stages of the disease in which it was given. It is invariably well tolerated, whatever be the nature of the

dyspepsia from which the patient suffers. It was given in doses varying from twenty to thirty grains thrice daily during or immediately after meals. On these grounds I consider it entitled to rank as the second best therapeutic iron.

3. *Protochloride of iron.*—This preparation was prescribed in the form of the syrup in one drachm doses thrice daily after meals. Each drachm of the syrup contained seven grains of the protochloride. As, during its administration, it repeatedly brought on nausea and had consequently to be suspended for a time, it would be better to avoid this drawback by giving it at the commencement in smaller doses, increasing it gradually to the one drachm dose as mentioned above. Making allowance for the delay caused in this way by the suspension of the remedy and its liability to induce intolerance, it is entitled to at least hold a third place in the grade of efficacy of these remedies. Recovery under its administration is otherwise in every respect satisfactory and complete.

4. *Phosphate of iron* yielded excellent results only in some of the patients treated by it, but in others it apparently failed, its effects being only appreciable after considerably protracted treatment. The beneficial character was apparent in those types of the disease in which there existed constitutional conditions allied to neuroses.

5. *Iron protoxide.*—This iron in some cases yielded only negative results, but in other cases its effects were satisfactory. This difference in its effects may depend upon individual peculiarities of constitution. It cannot therefore as a remedy be relied upon in all cases.

6. *Arsenic.*—This remedy when combined with iron is evidently useful as an alterative; but, as the result of the trials made with it as the sole remedy showed, it did not appear to exert any direct or appreciable effect on the renewal of the red blood-corpuscles and hæmoglobin in the cases of symptomatic anæmia and chlorosis in which it was tried. When, however, combined with an iron, especially the sulphate, I could not avoid being convinced that the efficacy of the iron was enhanced by the combination.

7. In pernicious anæmia, however, arsenic exerts a distinctly noticeable effect in promoting recovery alike of red blood-corpuscles and hæmoglobin. It is, however, rare, and indeed exceptional, in pernicious anæmia, to be able to administer arsenic in almost any dose, except the smallest—that is only a few minims daily—on account of extreme intolerance of it, so that in the majority of cases it is practically out of account as a remedy.

8. In several of the cases the red corpuscles numerically exceeded, in some instances by 2,000,000 per c.mm., the usual

standard number of 5,000,000. This excess having been found repeatedly, I am led to believe that by the treatment being continued a similar result would have been obtained in most, if not in all, the cases. It would appear from this discrepancy that an estimation of red corpuscles at 5,000,000 per c.mm. is too low a standard.

9. On the other hand, speaking with reference to the hæmoglobin, I must observe that I have never yet succeeded in raising the hæmoglobin to a standard of 100 per cent. The highest obtained has never exceeded 90 per cent., and that amount only in instances of exceptionally robust health. My experience therefore leads me to believe that 80 per cent. is a good health standard; and that 70 per cent., or even under, may be taken as a fair average estimate at which patients may be discharged from hospital treatment, provided that the red cells are over 4,000,000 per c.mm. It would appear from these results that our views in regard to the relative estimation of the red corpuscles and hæmoglobin require to be modified in accordance with these trials.

10. I have repeatedly had occasion to notice certain differences between symptomatic anæmia and chlorosis which I have not before seen referred to, but which are of importance as diagnostic signs. In the former the red cells and hæmoglobin do not bear the same definite relation to one another in their decrease and increase which may be observed in symptomatic anæmia. I have several times recorded cases of advanced chlorosis in which there was present a high numerical standard of red corpuscles (over 5,000,000 per c.mm.), while at the same time the hæmoglobin did not exceed 25 per cent. Such cases might not improperly be designated hæmoglobin anæmia, in the same sense that we speak of a pernicious anæmia as corpuscular. The low standard of hæmoglobin in chlorosis represents the chief pathological feature in that disease as do the reduced numbers and defective morphological characters of the red globules in pernicious anæmia. In consequence of the comparatively slow recuperation of the hæmoglobin in chlorosis the recovery of these cases is longer delayed than in those of symptomatic anæmia, and, besides this, there is observed in the red globules a decided proclivity to undergo morphological degenerations. These special differences lead us to regard chlorosis pathologically as a graver type of anæmia than symptomatic anæmia, although at the same time it specifically differs from the pernicious kind.

11. I would here again revert to the very severe type of anæmia referred to at the outset as being put under treatment by hydrochloric acid as the sole therapeutical remedy. I am not aware of this treatment having previously been tried. Many anæmias doubtless originate in defects of the primary gastric

digestion caused by either deficiency or complete absence of free hydrochloric acid in the stomach, the consequence of which is that the proteids not undergoing normal metamorphosis are largely thrown out of the system as waste and lost. This method of treatment by hydrochloric acid can only be of use in cases in which there is present that condition of atonic dyspepsia in which the hydrochloric acid is, as I have said, markedly deficient or entirely absent. This type of dyspepsia, however, is characteristic of a large number of anæmias at the commencement of, as well as throughout their entire course. During the forty-two days the patient was under this treatment the red corpuscles increased from 2,500,000 per c.mm. to 4,200,000 per c.mm., and during that long period the hæmoglobin only rose from 30 per cent. to 36 per cent. The patient at this stage of incomplete treatment left the hospital of her own accord. It was evident, however, that, whilst longer continued treatment would have raised the corpuscles to 5,000,000 per c.mm., it would not have materially increased the hæmoglobin from the low standard at which it had apparently become stationary. The result of this clinical experiment, as that of every other, proves that iron in some form is absolutely indispensable in the treatment of chlorosis, as well as of symptomatic anæmia, to effect complete recovery.

12. In each of the anæmias here reported there co-existed chronic constipation, and the urine in each case yielded the roseate colour, with nitric acid, referred to by M'Munn in his "Chemistry of the Urine," as an indication of the destruction of red blood cells. To what extent, if at all, this colour reaction indicates blood destruction through the agency of reabsorbed toxic materials from the prima via, as Sir Andrew Clark suggested, remains to be determined by further investigation.

The following anatomical and pathological distinctions have been suggested in the course of these trials as marking off diagnostic differences between the three grades of anæmia: (1) In symptomatic anæmia there exists a constant proportional relation between the number of red corpuscles and the amount of hæmoglobin. They diminish relatively during the course of the disease and increase relatively during recovery, the iron being deficient as to the whole blood and each cell relatively. (2) In chlorosis the relation between the number of red corpuscles and the hæmoglobin is entirely broken. The hæmoglobin is markedly deficient relatively to each cell and to the whole blood. The low relative amount of hæmoglobin is the chief pathological determining feature in chlorosis and points to the low amount of iron, which in this type of the disease is *par excellence* to be regarded as the specific remedy in its treatment. (3) In pernicious anæmia the normal relation between the red

cells and the hæmoglobin is also disturbed. The iron is in excess in each cell and also in proportion to the whole blood. The great diminution in the number of the red corpuscles and the relative excess of the hæmoglobin in relation to these and to the whole blood are the distinguishing features in this anæmia, so that, as chlorosis may be regarded as a hæmoglobin anæmia, pernicious anæmia may be viewed as a red corpuscular anæmia, that being the chief point of distinction between them. The excess of iron present in the blood of pernicious anæmia plainly contra-indicates its employment in the treatment of that disease, except in small quantities, as an alterative. Arsenic (Fowler's solution) when tolerated and continued by a patient suffering under pernicious anæmia is the preferable remedy. It is, however, only borne in certain cases, and in every case the toleration of it is to be acquired by giving it in small doses at the beginning and gradually increasing it. Quinine is markedly useful in that group of pernicious anæmias in which there is splenic enlargement, and its beneficial effects are enhanced when combined with moderate doses of iron. The best drug in such a case is the citrate of iron and quinine given in full doses. My recent experiences in connection with the treatment of pernicious anæmia by the transfusion of healthy blood is leading me to attach much importance to that mode of treatment.—*The Lancet*, *February* 25, 1893, *p.* 403.

14.—ON THE THERAPEUTICS OF CHRONIC LEAD POISONING.

By J. Dixon Mann, M.D., F.R.C.P., Professor of Medical Jurisprudence in Owens College.

[This paper is based upon observations made in two cases of chronic lead poisoning, undertakes to determine (1) the relative importance of the channels by which lead is eliminated in chronic poisoning, and (2) the influence of drugs usually prescribed in such cases on the rate of elimination. Dr. Mann's cases and tables are here omitted.]

The mode in which lead is eliminated from the human organism in cases of chronic lead poisoning, and the influence of drugs in producing its elimination, are still disputed points. Some state that the kidneys are the chief eliminators, others the bowels. A great deal of confusion has arisen from the fact that many of the chemical researches on this subject have been made on the lower animals and their excretions. In experiments on animals, although the amount of lead introduced into the organism is actually small, it is relatively large when compared

with the minute daily doses received by human beings in drinking water, which may not contain more than one milligramme of lead per litre. In man the inception of the poisoning is usually extremely gradual, each dose being infinitely small; it is only by the prolonged and continuous action of the poison that its toxic effects are produced. A further objection to comparative experiments exists in the difference in susceptibility and in the eliminative channels in animals as compared with man. Ellenberger and Hofmeister found that in sheep the elimination of lead mostly takes place by the kidneys.

Many of the statements as to the action of drugs in promoting elimination are founded on isolated chemical observations, or on observations which, from the manner in which they were conducted, render them valueless.

Of all the drugs recommended as aids to elimination, potassium iodide has obtained the most favour; nor are observations wanting which seem to warrant this preference. Some of the earlier writers on the subject relied on the fact that cases of chronic lead poisoning improved whilst taking potassium iodide, as constituting proof that it aided elimination. Subsequently isolated analyses of the urine were made after administration of the drug, and considerable amounts of lead were found. Various theories have been formulated to explain the way in which potassium iodide facilitates the elimination of lead. The primitive idea was that lead iodide was formed; this could be supported by experimental evidence. Potassium iodide will attack lead albuminate and insoluble salts like the sulphate, and partially convert them into lead iodide. It was soon seen however that this availed nothing, as lead iodide is a very insoluble salt, so much so that one eminent chemist accounted for the alleged benefit derived from its use in chronic lead poisoning, by stating that it rendered any lead that might be in the system practically insoluble and consequently inert. Then the theory of the formation of a double iodide of lead and potassium was formulated. It is quite true, as is adduced, that double salts like the one-named, are as a rule very soluble in water. The difficulty however presents itself that the double iodide of lead and potassium is formed with some difficulty, under conditions which could scarcely be assumed to take place within the organism, and further that it immediately decomposes in the presence of water. Binz's theory as to the action of potassium iodide on albuminous substances has been utilised to explain the action of the drug in liberating the lead from albuminoid combinations. It is assumed that lead when stored up in the tissues exists as an albuminate; that free iodine is evolved from the potassium iodide, which is taken up by the albuminous substances and causes them to undergo rapid

metamorphosis, and thus liberates the combined lead. Allowing this, the original difficulty again presents itself; the lead set free would combine with the iodide present in excess, or with the free iodine.

None of these explanations are satisfactory, and I believe for the reason that they attempt to explain a condition that does not exist.

Reference to the tables shows that, when the patients were taking potassium iodide, the amount of lead present in the fæces and the urine was not increased. The amounts obtained fluctuated throughout the whole periods of observation, whether potassium iodide was being taken or not; the sole constant feature was a progressive diminution in the total amount of lead daily eliminated. These fluctuations might, in isolated experiments, so correspond to the administration of potassium iodide as to encourage the view that the drug was the cause of increased elimination, which in reality was due to accidental disturbances—or, in other words, to some unknown conditions favouring elimination that existed at the time the observations were made. Experimental evidence that potassium iodide favours the elimination of lead is, so far as I have been able to ascertain, solely founded on chemical observations of the urine: the fæces were neglected. During the four months over which, in the first case, my analyses extended, on only one occasion did I fail to obtain a weighable amount of lead sulphate from the fæces. But on many occasions the urine contained but a trace, and on many others no trace at all. This shows the futility of relying on one or two isolated examinations of the urine only.

It is probable that the results obtained by Annuschat were due to isolated experiments. He took the urine passed by a patient suffering from chronic lead poisoning for two consecutive periods of three and four days respectively, the amounts being for the first three days 1,050 c.c., and for the following four days 2,300 c.c. In neither of these was lead present. After the patient was put on potassium iodide the urine was similarly collected for two periods of three and four days, amounting respectively to 1,580 c.c. and 2,300 c.c. In the 1,580 c.c. 0·0075 gramme of lead, and in the 2,300 c.c. 0·0143 gramme were obtained. Pouchet found that potassium iodide eliminates lead, but not continuously; after six to ten days the effect of the drug is exhausted, even when given in increased doses. If again administered, after an interval of two or three weeks, it acts as before. It was to test this that I allowed intervals of from a fortnight to three weeks to elapse between the periods of treatment by potassium iodide. The tables show no increase in lead on resumption of the iodide after an interval of negative treatment.

Baths and massage have long been favourably regarded as promoters of lead elimination, and quite recently a case was recorded in which, after treatment with potassium iodide, without a trace of lead being found in the urine, the iodide was stopped and general massage commenced. The result was extraordinary, inasmuch as 50 milligrammes of lead per week were obtained from the urine. Trial of this method, in conjunction with hot baths, was made in my first case. The result seemed to be favourable in producing an increase in the daily excretion of the lead by the fæces, but it was insignificant as compared with the enormous increase in the above mentioned case; the urine also showed a slight increase in lead.—*British Medical Journal*, *February* 25, 1893, *p.* 401.

15.—ON THE PROGNOSIS OF CHRONIC ALCOHOLISM.

By Thomas Barlow, M.D., F.R.C.P., Physician to University College Hospital.

[Dr. Barlow concludes a weighty address on this subject with the following remarks:]

The very severe cases of alcoholic neuritis may die from heart failure, or from involvement of diaphragm, or from the lungs becoming waterlogged, especially when the laryngeal innervation is attacked. There is also another serious risk in the chronic cases, viz., the supervention of insidious tuberculosis. But the severe cases do not always die. I have seen recovery in a case in which all four limbs were paralysed, and in which there was laryngeal paralysis and strong reason to suspect the existence of tubercle in both lungs.

A great many of the milder cases recover. I am confident that careful enquiry will elicit that in both men and women there are *short* attacks of alcoholic neuritis which have a period of activity and then a stationary period, and afterwards one of retrogression. If the patients are not called upon to get about much, these mild attacks may elicit but slight notice, and in some of them the painful phase is of short duration. The modified attacks are specially worthy of study in cases of relapsing alcoholism in men in whom there are intervals of abstinence.

Now, let us ask, by what means does recovery take place?

The great factors are, undoubtedly—(1) the withdrawal of alcohol; (2) the administration of food; (3) time, and the natural tendency to elimination and repair.

Shampooing and galvanism are helpful in the middle and late, but harmful in the early, stages, and I am sure I have seen benefit from Turkish baths and lamp baths, and, in the later stages, from other hydropathic measures.

Sunlight and bracing air and change of surroundings are invaluable.

But it cannot be too strongly emphasised that when alcohol is withdrawn and food assimilated, there is a natural tendency towards complete recovery independent of all therapeutics. There is a tendency towards partial recovery even if the alcohol be not entirely withdrawn but diminished in concentration and quantity, if only there be acquired a certain improvement in the assimilation of food.

But if the alcohol be absolutely withdrawn, the completeness of recovery in some cases is marvellous.

What, then, is the best working hypothesis which harmonises—(1) The findings of morbid anatomy in the fatal cases? (2) The natural history of the allied symptoms dependent on metallic poisons and the allied symptoms dependent on diphtheritic poison? (3) The observed clinical course of cases of partial and complete recovery in alcoholic neuritis?

I think the best working hypothesis is this—that alcohol in concentrated form given over varying periods acts as a definite poison, leading to an irritative overgrowth of connective tissue and a certain amount of degeneration of normal tissue elements, but that when this poison is withheld and a chance given to the living organism, though there may be for a time a tendency to the extension of connective tissue change by continuity of structure, yet that that extension is limited, and that subsequently the normal tissue elements tend to be restored.

Now, I can imagine that some may say: Yes, that may be provisionally granted for alcoholic neuritis, but what about cirrhosis of the liver—that is the *crux?* With our recollection of the hobnailed granulations on a typical specimen of alcoholic cirrhosis in the post-mortem room, how can you expect us to be so credulous as to believe that any recoverability was possible from such a condition?

Now, in reply, let me ask in any given case, *how far and how long* the conditions had been fulfilled which were emphasised?—(1) The administration of alcohol, had it been stopped absolutely?—(2) Was there any assimilation of food? (3) The element of time—how long had the irritant been stopped, and how long had food been assimilated?

But I should like to submit further that we are not justified in supposing that every case of alcoholic liver is in a state of hobnailed cirrhosis.

The liver may be very swollen and tender as the result of alcoholism, and yet its surface be smooth. It is fair to suppose that the fibro-cellular material which is deposited in the early stage may give rise to considerable bulk and yet be capable of absorption.

It is in harmony with this view that men liable to relapsing alcoholism, even if very severe, may during intermediate periods of abstinence apparently acquire all but absolute health, though this is, I think, not the case with those who continue to take a small amount. Let me, however, approach the subject from another side. Occasionally, cases of alcoholic ascites make a remarkable recovery under early tapping and other simple treatment. It is usually taught that this recovery is brought about by the mechanism of fresh vessels being formed, which give rise to collateral circulation and so relieve the portal congestion. Now it is true that in some such cases we observe enlarged veins about the umbilicus and elsewhere which support the above explanation. But in other cases no such enlarged veins can be found. I submit that the more reasonable hypothesis is that the connective tissue overgrowth in the liver has been largely re-absorbed.

Let me refer in passing to a recent paper by Dr. Bristowe recounting several cases of complete recovery from ascites in alcoholic subjects, and in which, as I learnt from him, the signs of collateral enlarged veins on the abdominal walls were conspicuously absent.

Now with respect to other results believed to be brought about by chronic alcoholism I wish to speak very guardedly. There is no doubt that its co-existence makes the outlook much more serious in many acute and chronic diseases, and that it often makes all the difference in the world as to chances of recovery.

But I think it is possible that we have attributed too much to its influence in the etiology of other diseases. I refer especially to kidney disease and diseases of the large and middle arteries. It is a most significant fact that in a very large number of cases of alcoholic cirrhosis of the liver there is no albumen in the urine, and that the kidneys are intact at all events till the latest stage of the disease.

I would suggest that it is most desirable to study alcoholism apart from gout or atheroma or syphilis or senile degeneration which complicate the problem.

If we so study it I am persuaded the conviction will force itself home that the true conception up to a certain point is that of a poison working dire results but capable of being eliminated, and when eliminated leaving the organism with a chance of righting itself once more.

Besides alcoholic neuritis and ascites, I would recall to your minds the more familiar instances of alcoholic pharyngitis, laryngitis, and gastritis, and still more, cases of delirium tremens, and ask you if these do not illustrate complete and absolute recoverability after the entire removal of the irritant? From the late Dr. F. Pearse I learned the existence of extensive dilatation of the heart apart from valvular lesion, probably due to severe alcoholism. I have seen at least one case of this kind in a young adult, in whom the withdrawal of alcohol was followed by striking improvement.

But, now, assuming that we have to do with an uncomplicated case of chronic alcoholism, let us consider some of the difficulties which meet us in the practical application of the three indications as to prognosis and treatment which have been already stated.

First, as to removal of the irritant. I have found, in recalling my own experience and in talking with fellow-practitioners, that the hesitation which one felt in the absolute withdrawal of alcohol was based on the fear of heart-failure. The rapid pulse and the thin, short, clear tic-tac sounds have frightened me again and again. But the study of cases of alcoholic neuritis convinces us that this character of pulse is often one of the direct manifestations of the poison, and that, for the sake of the heart itself, we must withhold alcohol.

There is another bogey, and that is the fear of precipitating delirium tremens if the administration of alcohol be suddenly stopped. This is one of those time-honoured statements repeated from generation to generation. But what is the proof of it? And even if it occurs, is not the ultimate prognosis better in the long run for the bold measure of removing the cause?

But there is another bogey, and that is the fear of losing the patient in the sense that he gives the doctor his *congé*. Well, that is not to be lightly set aside. But the question is whether the gain in self-respect is not after all worth putting over against the temporary loss of a client?

What should we consider our duty, if instead of alcohol we found our patient taking arsenic, lead or mercury in poisonous doses? We should surely have the courage to tell him the true state of matters, and urge him to discontinue his dangerous practice, and if he refused, we should feel justified, as an extreme measure, in declining any further responsibility for his case.

What can be more humiliating to us, as medical men, than to have repeatedly to attend people who every day are shortening their lives, and converting a remedial condition into a hopeless disease, whilst we stand with folded arms, or write prescriptions, and have not the courage to tell them what is right and stick to it?

As to the second factor—viz., the feeding the patient—there is often a difficulty arising from the proneness to vomiting. One is often met by the objection in an alcoholic dyspeptic that nausea and vomiting recur, and that spirit is the only thing which will quiet the stomach, and so a vicious circle is kept up. It is perfectly true that alcohol will temporarily quiet the vomiting by blunting the irritability of the pneumogastric nerve endings in the stomach wall, but is that a benefit? The vomiting may, after all, be nature's effort to get rid of catarrhal products. Alcoholic vomiting is not always distressing in itself—it is sometimes quite easy, and not unfrequently after the dislodgment of a quantity of thick mucus, the patient may be able to take a little food without loathing. It appears to me, indeed, that one great indication is to get rid of the thick, sticky, tenacious mucus which is so abundant, and which must interfere with assimilation and favour auto-infection with faulty digestive products. It is for this reason that I believe alkalies and very hot water are so helpful. But it must further be remembered that in the bad cases, so long as alcohol is taken, the anorexia continues, and if alcohol be absolutely stopped, after a few days nausea and loathing of food gradually give way, and a natural craving for aliment reasserts itself.

In respect to the third factor—viz., time, the lesson to be learned from the spontaneous recovery of alcoholic neuritis, is that we are to be patient. If the administration of the poison has been stopped and food is being assimilated, then we can afford to fold our arms and wait for a while.

I think it is a short-sighted policy to replace the alcoholic craving by a desire for sedatives. Even a few sleepless nights are better than lowering the appetite of the general nutrition by the administration of chloral, morphia, and the like.—*Medical Chronicle, January*, 1893, *p.* 220.

16.—THE BACTERIOLOGICAL EXAMINATION OF THE CASES OF EPIDEMIC CHOLERA IN NEW YORK, 1892.

By Edward K. Dunham, M.D., Professor of Bacteriology, Bellevue Hospital College.

The materials submitted for bacteriological examination differed considerably in character. As most of the suspected cases died after a very short illness, material could first be collected only at the autopsy. Some of the intestinal contents,

and in one case some of the contents of the stomach, were collected in vessels for transmission to the laboratory, or the ileum was tied at two points a short distance apart and then cut beyond the ligatures so that there might be the least possible alteration of the contents before its actual examination. In two cases fluid dejecta were obtained from suspected cases during life and sent to the laboratory in stoppered bottles. In still other cases the only available material before the death of the individual was clothing soiled by dejecta.

The method of examination necessarily differed according to the nature of the material received for examination. Where this material was fluid it was examined directly under the microscope, without previous staining, and again after drying and dyeing with aniline colours.

These direct microscopical examinations of the intestinal contents proved very unsatisfactory. In only one case did cover-glass preparations of the dejecta show large numbers of comma bacilli agreeing in form and size with the cholera bacillus. This case was where dejecta had been collected from a patient some time before death and examined within a very few hours. Plate cultures from the same material showed that the cholera bacillus made up 98 per cent. of those bacteria present which were capable of developing in ordinary nutrient gelatin at the temperature of the room.

In all the other cases microscopical examination revealed an abundance of columnar epithelium from the intestinal mucous membrane; numerous straight, thick bacilli; a considerable amount of granular detritus; but at most only a few curved bacilli, which could not warrant even a presumption for or against the probability of a diagnosis of epidemic cholera. Plate cultures from this same material revealed the presence of the cholera bacillus in proportions varying from about 20 per cent. to as high as 90 per cent. of the total bacteria developing upon the plates. This observation shows the importance of not relying upon a simple microscopical examination of dejecta or intestinal contents. An analogy is presented by the untypical forms found in old bouillon and gelatin cultures of the cholera bacillus.

The cultures made for the purpose of identifying the cholera bacillus were invariably prepared by inoculation from typical colonies from plate cultures. These plate cultures were made, where possible, directly from the fresh dejecta, or from material taken from the intestine or stomach at the autopsy. Where this was impossible, the material sent for examination (soiled clothing, &c.) was introduced into bouillon in test-tubes, and the latter placed in an incubator at 36° C. (96·8° F.) for six, eight, or twelve hours, until the bouillon was cloudy. From these impure bouillon cultures the initial plate cultures were then

made, and the colonies developing on these plates used to inoculate other media for the purpose of identification.

In order not to miss the cholera bacillus, should it be present in small proportion, even where dejecta or intestinal contents were received, this preliminary bouillon cultivation was made in the hope that in this way material for plate cultures, more favourable than the original material, might be obtained. This safeguard against possible failure to detect the cholera bacillus in the original material proved unnecessary in all the cases examined. The first set of plates from the original dejecta always yielded positive results, there being no difficulty in detecting the colonies of cholera bacilli. A previous cultivation in bouillon at the body temperature appeared, however, to increase somewhat the relative abundance of the cholera colonies upon the plates. In the cases where the material to be examined was very small in amount and dried upon clothing, a preliminary cultivation in bouillon proved very satisfactory.

The bacteria associated with the cholera bacillus were chiefly bacterium coli commune or proteus vulgaris, so that there was no difficulty in distinguishing those presumably cholera from those which were certainly not cholera. But the appearances of the cholera colony varied so much on plates which developed at different temperatures, and with the size of the diaphragm used when they were examined under the microscope, that it seems excusable to dwell a little upon these variations, since the recognition of the cholera colony is the first step in the bacteriological diagnosis of a case.

The classical descriptions of the cholera colony refer to colonies which have developed at a temperature of from 60° to 65° F. Under these conditions the colony appears circular, coarsely granular, with a peculiar high refraction, giving an appearance as though the colony were made up of broken bits of glass or beads of various sizes grouped together. It is colourless, or sometimes has a very faint pinkish tinge when examined with some lenses, but not, as far as I have observed, when examined with apochromatic objectives. Around the colony, after it has reached a considerable size (thirty-six to forty-eight hours), there is a narrow zone, in which the gelatin is softened and its surface depressed. This causes a refraction of the light, so that the colony appears surrounded by a shadow when a moderately small diaphragm is used.

This description of the colony applies only to colonies more than twenty-four hours old. Very young colonies appear as minute, fine, granular, colourless spots; nearly circular, but with a slightly irregular edge.

Colonies which have developed at a higher temperature, approaching the point at which the gelatin begins to soften

(from 70° to 73° F.), show considerable modifications attributable to the more rapid liquefaction of the gelatin. Instead of forming a compact mass surrounded by only a narrow zone of softening, the growth appears more or less scattered through a circular area of liquefaction. There is a central, more compact mass, resembling the colony grown at a lower temperature: but its edge is ragged, and in the liquid surrounding it there are small, irregular portions of the growth which appear to have been detached from the central mass, and to float about freely in the liquid. The edge of the liquefaction, when a very small diaphragm is used, shows a narrow border of growth, with very fine short radiations resembling the milled edge of a coin, but never extending appreciably into the solid gelatin.

As soon as the colonies upon the plate cultures had grown enough to develop their characteristic appearances, material from them was used to inoculate tubes containing about two cubic centimetres of a sterile solution of one per cent. peptone and half per cent. table salt in distilled water. These peptone cultures were then placed in the incubator at about 36° C. (96·8° F.) for six hours. They were then examined in hanging-drop preparations to determine the form, arrangement, and motility of the individual bacteria. In all of the cases these hanging drops showed curved bacilli, either isolated or in S-shaped pairs, and possessed of a very active motility. The growth was sufficiently abundant to render the liquid distinctly cloudy, and to occasion a whirling appearance in the cloudiness when the tube was shaken. These tubes were then used to obtain the "indol reaction" by pouring a few drops of concentrated, "strictly pure" sulphuric acid down the inner surface of the tube, so that a layer of the strong acid was formed below the cultures. Within a few moments the peptone solution acquired a distinct rose tint, sometimes tending towards lilac. In such young cultures the colour was often faint, but in all cases it was unmistakable. Witte's "peptonum siccum" was used.

These observations required from thirty-six to forty-eight hours from the time the material was received, and if all the data furnished by them agreed with the known characteristics of the cholera bacillus, a positive report was considered as justified. These data were: 1. The size, form, and arrangement of the individual bacilli. 2. Their motility. 3. The appearance of colonies upon plate cultures. 4. The comparatively slow liquefaction of ten per cent. slightly alkaline nutrient gelatin. 5. The rapid development in peptine solution at the body temperature. 6. An early and distinct development of a positive response to the "indol test."

Fortunately, in all the cases examined, the variations in the above characteristics fell within the limits of variation previously

well recognised in studies of fresh, pure cultures of the cholera bacillus grown at various temperatures. There was, therefore, no ground for hesitation in arriving at a diagnosis.

As confirmatory tests, cultures in gelatin tubes, or agar-agar, and on potato were also made.

The gelatin-tube cultures show variations in development perfectly analogous to those observed in the colonies upon plate cultures, and due also to differences of temperature. These variations are of degree rather than of kind, and are illustrated in the accompanying photographs.

Not only do the appearances of cultures differ where the development has taken place under different conditions, but the appearances of the individual bacilli vary somewhat according to the medium and the temperature. Under some circumstances the bacilli appear short and but slightly curved. In other cases they are longer, appear more slender, and show a much more marked curvature. — *The American Journal of the Medical Sciences, January*, 1893, *p.* 72.

DISEASES OF THE NERVOUS SYSTEM.

17.—ON HYSTERICAL RAPID RESPIRATION.

By S. Weir Mitchell, M.D., LL.D.

[Dr. Weir Mitchell's cases are here omitted.]

It is some years since first I called attention to the subject of the rapid breathing of certain hysterical patients. Since then I have seen it often—indeed, within six months four times. Several of these cases were of unusual value, because long under my care or so situated as to admit of graphic representation of the respiration types.

I have now seen so many of these cases connected with hysteria that I am able to formulate as to them certain conclusions.

The breathing is largely upper costal, sometimes exclusively so. It is exceptional to find the relative share, as between chest and diaphragm, preserved. As a rule, the breathing is slight in amount—that is, superficial, but without appearance of effort. Usually, or early in the case, the patient is ignorant of the existence of the symptom. When this knowledge is once acquired the respiration rate is increased by excitement, even by the mere approach of nurse or doctor. In certain persons

the symptom occurs only just after sleep, and may be quite absent in sleep—indeed, it is usually so. In some cases this symptom is almost the only distinct expression of hysteria, or is not present at all until the patient is emotionally excited. The number of respirations goes up and down rapidly, and without any marked coincidental change of pulse. This type of breathing is not a possible voluntary product. The effort of a healthy person to breathe as fast as these patients breathe causes exhaustion, and the graphic record is irregular and unlike that of hysteria. Cases in males are more rare, and cannot always be with certainty regarded as hysterical.

In 1883 Dr. E. Mackay described a girl, seventeen years old, who, while sitting up in bed, breathed from eighty-eight to ninety-three times per minute, with now and then convulsive gasps. Her pulse was feeble, and beat sixty-four times to the minute. Temperature, 99° F. She had had "chlorotic anæmia" and a loud systolic basal bruit, which was still so loud as to mask all other chest sounds. Morphine and atropine overcame the peculiar respiration symptom, but on the third day it rose to 88–128, and thereafter the case displayed a large variety of hysterical symptoms. The respiration was shallow and short.

Dr. Bristowe, amongst other hysterical disorders, seems to speak—if I do not misapprehend him—of hysterical dyspnœa with asthmatic symptoms. In one case there was rapid breathing, cough, and bloody expectoration, with no rise of temperature. He goes on to say that simple excess in the rate of breathing may be seen in hysteria. In the case of a woman, thirty or forty years old, with other hysterical signs, there were spells of rapid breathing, seventy or eighty respirations to the minute, and lasting from a few minutes up to several hours—the pulse remaining normal in frequency.

In my *Lectures on Nervous Diseases* I gave several illustrations of this curious phenomenon. It is only necessary to refer to them. The one male case of rapid breathing there stated was seen by Dr. Brinton and myself, and is probably alone in the records of medicine as a case of rapid breathing (50–125)—caused by bullet wound of chest. The quick respiration is said to have come immediately upon the wounding of the lung. The constant dyspnœa, the type of breathing, which was normal, and other features, set this case apart from all others I have seen. Certainly it was not hysterical. In the same lectures I called attention to the diagnostic value of *rapid upper costal* respiration as sometimes of use in arousing suspicions as to the presence of hysteria in conditions of disease which would not otherwise suggest its presence. In some forms of insanity we may have

rapid breathing, but the type has, in all such cases seen as yet by me, been normal and not merely costal, or with scarcely visible abdominal movement. Thus in wild mental excitement from any cause, and in acute mania, the respiration may rise to forty or higher, but, as a rule, the heart is then also in too rapid motion, and the chest movements are merely exaggerations of the normal action, and never, I believe, peculiar like those seen in hysteria. I saw but recently another illustration of the diagnostic fact just stated. A lady, aged sixty-two years, consulted Dr. John K. Mitchell, complaining of the following symptoms: Passive refusal to speak; no aphonia; great feebleness; absolute anorexia; much flushing of the face. I was inclined to regard the case as one of the forms of melancholia, until Dr. Mitchell called to my attention the fact that always on awakening, or from the excitement of a visit, her respiration rose at once to 50 or 60 without rise of pulse. The breathing was upper costal. He was inclined to think that hysteria was the dominating element in her case, and although I did not at first agree with him, his conclusion proved finally to be the correct one.

Some of the most puzzling diagnoses we are called upon to make are those in which a serious fall has left the patient palsied or unconscious. Occasionally the rest of the symptoms which appear grave, are betrayed as hysterical by the rapid rate of the respiration—a thing so constantly overlooked that, save in acute pulmonary diseases, it is rarely stated.

I have seen, very lately, in consultation a lady who suffered from the fall of a block of wood on her head. She dropped insensible and remained thus for several days, her condition causing great alarm to her friends and immediate medical attendant. The pupils were largely dilated. There was no apparent palsy. The insensibility was not profound, but to appearance deepened slowly for several days. She awoke from this state at the end of a week, and thereafter had frequent vomiting; fixation of head—it could be turned from side to side, but not bent backward. The upper cervical region was sensitive, and pressure caused vomiting. The pulse was 80; the muscle reflexes all in excess; sensation was normal in all its forms. Meanwhile there was constant headache, but healthy eye-grounds. Many things in this collection of symptoms puzzled me. The case had very little of that look of hysteria on which one gets used to relying. But, the respiration was 50, and upper costal, and my decision, that all the phenomena were hysterical, has since been amply justified by the developmental changes of the case.—*The American Journal of the Medical Sciences, March*, 1893, *p.* 235.

18.—A CASE OF CEREBELLAR TUMOUR, WITH LOSS OF THE KNEE-JERKS.

By Henry Handford, M.D., M.R.C.P., Physician to the General Hospital, Nottingham.

Case.—L. W., aged 16, was admitted on March 2nd, 1891. His illness began three months previously, with sickness coming on many times daily, independently of taking food. This was followed by headache, chiefly frontal, giddiness, unsteadiness of gait, and occasional tingling in the hands and feet. For the ten days before admission he suffered from fits, commencing with pain in the back and head. He then suddenly "shoots himself out straight" and lies thus quite still with his eyes wide open for ten to twenty minutes. Beyond very slight twitchings of the hands no spasmodic movements or muscular contractions take place during the fits, the limbs remaining flaccid. For the last few months his sight has been failing, and for the past four or five days he has seemed "strange in his mind." He is very slow in answering a simple question. On admission it was noted that the knee-jerks were completely absent on both sides. They were thoroughly tested, as I was much surprised at the fact, and could not then offer a satisfactory explanation. The plantar and abdominal reflexes were present on both sides, and there was very slight ankle clonus also on both sides. There was no anæsthesia or analgesia. The other systems were normal, and the urine was free from albumen and sugar. Double optic neuritis was found, more advanced in the right eye, and by March 9th some weakness of the ocular muscles, especially of the abductors, and slight nystagmus were noted. The pupils were dilated and reacted imperfectly to light. There were numerous small hemorrhages in the retinæ. He could still see a little, but eventually he became quite blind. He was rather feeble, but there was at this time no definite local paralysis. His gait showed much incoördination and unsteadiness with a tendency to stamp the heels. He had great difficulty in turning round, and complained much of giddiness. He could stand with difficulty with the feet apart and the eyes closed, but with the feet close together he tended constantly to fall *backwards*. He had never fallen whilst walking with the eyes open. On March 13th there was marked internal strabismus of the right eye, but it was temporary.

April 4th.—The patient gets rapidly worse. He screams a great deal, and lies in a semi-conscious state. There is a good deal of retraction of the head. He has had several more fits. Knee-jerks still quite absent, though the plantar and abdominal reflexes are still brisk. No ankle clonus can now be detected

on either side. On account of the imperfect consciousness it is very difficult now to determine the condition of sensation. He cannot move body or limbs. He is emaciating rapidly. The temperature has all along been normal.

After this the paralysis became more and more absolute, difficulty in swallowing arose, and also attacks of dyspnœa, and hurried respiration, apparently from implication of the respiratory centre. Although emaciation was extreme, and he had been accustomed to pass urine and fæces into the bed for several weeks no bed sores formed. The limbs remained flaccid. He died on May 31st. Total duration of symptoms six months.

Unfortunately the post-mortem examination took place when I was out of town for a day or two, and so the spinal cord was not examined.

There was no meningitis, the cerebral convolutions were somewhat flattened, the lateral ventricles distended with fluid, and a tumour was found about the size of a large walnut on the under surface of the cerebellum growing from the middle lobe. It was pressing on the medulla, which was somewhat flattened, and it had closed the foramen of Majendie, thus causing the distension of the lateral ventricles. It did not involve any of the cranial nerves. On antero-posterior vertical section the tumour was found to be more or less defined, though not encapsuled. It had destroyed the whole of the middle lobe of the cerebellum and extended into both lateral lobes, especially the left. On microscopic examination it proved to be a sarcoma. There were no other growths in any of the other viscera.

The physiology of the knee-jerks is still obscure. It is agreed that the integrity of the reflex arc, consisting of afferent nerves, ganglion cells in the anterior cornua, and efferent nerves is necessary, though it is denied that the movement is a true reflex action, because the time elapsing between the stimulus—the blow on the tendon—and the jerk of the leg is much too short. But it is not agreed whether anything further is necessary for the normal activity of the knee-jerks, nor why they become excessive in some cases and fail in others, the reflex arc remaining uninjured.

According to one school the spinal reflex arc is sufficient by itself for the production of the knee-jerks, and it is habitually controlled by higher encephalic centres. When this controlling influence is cut off by a cerebral lesion, or by a total transverse lesion of the cord, exaggerated reflexes result.

On the contrary, the French school teach (and their views have been largely adopted in this country) that the degenerative changes in the terminal portion of the fibres of the crossed pyramidal tracts "cause an irritative overaction in the related

great ganglion cells in the anterior cornua, and thus lead to an exaggerated condition of 'tonus' in the muscles and the increased tendon reactions."

Dr. Hughlings Jackson has taught for many years that muscular "tone" and the tendon reactions depend on cerebellar influence, which is normally more or less antagonised by the influence of the cerebrum. And when the influence of the cerebrum is cut off by any lesion "the unantagonised influx of cerebellar energy" is the cause of the increased "tonus," tendon reactions, and rigidities.

Dr. Bastian has adopted a somewhat similar view, and has much strengthened his position by showing that in "total transverse lesions of the spinal cord," when the influence both of the cerebrum and of the *cerebellum* is entirely cut off—the knee-jerks and all reflex actions concerned with parts of the cord below the lesion are completely absent, notwithstanding the most marked descending degeneration of the crossed pyramidal tracts.

I have quite recently seen a case of fracture of the sixth cervical vertebra, causing a total transverse lesion of the cord. There was complete paralysis of motion and sensation of all kinds up to the level of the nipples. Twenty-four hours later the paralysis had involved the arms. The man died in forty-eight hours, but although all appearance of "shock" was absent after the first few hours the knee-jerks were absolutely gone.

The case of cerebellar tumour that I have described seems to have almost the value of an experiment in showing the connection of the cerebellum and the knee-jerks. According to widely accepted views the pressure of the tumour on the medulla should have produced descending sclerosis of the crossed pyramidal tracts and *exaggerated knee-jerks*. The presence of optic neuritis gave rise to the suspicion of a tumour, and the incoördination of gait and tendency to fall *backwards*, suggested the middle lobe of the cerebellum as the seat. But the complete absence of the knee-jerks in that early stage when the lad was still able to walk was a great difficulty in accepting the diagnosis of brain tumour. The incoördination and the stamping of the heels much resembled the gait in locomotor ataxia, a disease with which, according to some, the cerebellum has much to do.

At this time there was complete control over the sphincters; there were no shooting pains, no loss of light reflex, no muscular wasting, and no loss of sensation; and the absence of bed sores, even to the end, showed that trophic impairment was not great. Under these circumstances it is scarcely possible to suppose that there could have been any peripheral neuritis, sclerosis of the posterior columns of the cord, degeneration of the posterior

nerve roots, or any tumour or other coarse lesion of the cord or cauda equina to account for the loss of the knee-jerks. And, besides, with the exception of this one disputed question of the knee-jerks, the cerebellar tumour and the consequent distension of the lateral ventricles, were quite sufficient to account for all the symptoms from which he suffered. There seems, therefore, much reason to believe that the loss of the knee-jerks in this instance was due to the cutting off of the cerebellar influence, by the growth of the tumour.—*Brain, parts* 59 and 60, 1892, *p.* 458.

19.—THREE CASES OF FRIEDRICH'S DISEASE.

By E. H. Brock, M.D., B.S. (Lond.), Maidstone.

Family history.—The father of Cases 1 and 2 is alive and healthy; he had one sister who died in middle life and who is said to have been affected similarly to the cases here described. Their mother is alive and healthy and has had fifteen children, of whom eight died in infancy; of the other seven, four were boys and three were girls. Of the three girls, one died aged thirty-one, affected similarly to the cases here described; the second is married and has four children, three boys and one girl, the eldest boy, aged fifteen, being affected (Case 3); and the third is married and has five children, all healthy. Of the four boys, one is married and has nine children, five boys and four girls—of these, one of the girls, aged sixteen, has very marked lateral curvature and suffers from asthma. The second (Case 1) is married and has four children, three boys and one girl—one of the boys, aged ten, is said to have bad health; he has attacks of weakness of the arms and legs, especially the latter, during which he is unable to get about or to dress himself, the attacks passing off in the course of a day, after which he seems all right. Physical examination of this patient does not reveal anything significant of disease, his knee-jerks, muscular development, sensation, gait, eyes, &c., all appearing normal. The third is single and healthy; and the fourth, who is married (Case 2), has no family.

Case 1.—S. S., aged forty. Has been married sixteen years, and was formerly a stonemason. Complained mainly of inability to walk. He was quite healthy till eighteen years of age, when having been working as a stonemason for four years it was noticed that his right shoulder was "growing out." He sought advice and after getting worse for a time it became stationary. About four years later he gave up his work as a stonemason, partly from the fact that he used frequently to

strike his hand with the mallet. A few months later he came to London and obtained a situation as foreman in a brick-field. Whilst thus engaged he began to notice some difficulty in walking in the dark; he seemed to "go all over the place." The difficulty was especially marked in ascending or descending steps, the latter being worse. About this time he had occasional violent headache. He married, and about two years after coming to London he returned to the country and tried to work in a stone quarry. He very soon, however, had to use a stick in walking, and said his legs used to "catch," and he could not understand how it was he always seemed to lift his feet too high. The difficulty in walking had gradually increased and for the last three years he had been quite incapacitated. His wife thought his speech had gradually become less distinct, and this was especially remarked by his friends who saw him at infrequent intervals. At times he had difficulty in holding his urine, but did not wet the bed. The patient was very well nourished; he was easily excited to laughter; the speech was thick and indistinct, sometimes being quite unintelligible; the nodding movements of the head were very marked, especially when the patient was first spoken to. There was very slight slow nystagmus sometimes observable when he looked to the extreme right or left; the pupils and optic discs were normal. He suffered from slight weakness of the legs and the hands. There was very marked incoördination of the arms as when directed to touch the end of his nose or pick up a pin. The knee-jerks were absent; the plantar reflex was present; cremasteric and abdominal reflexes were not obtained; there was no loss of common sensation. He could just stand with assistance and an attempt to walk was markedly ataxic, the knees being over-extended. He had no lightning or girdle pains and there was no rigidity of the legs or arms. The patient had marked lateral curvature of the spine, to the right in the upper dorsal region, to the left below.

Case 2.—C. S., aged twenty-seven, married. This patient said that he had always had more or less difficulty in walking in the dark and in going up and down stairs. This difficulty had become greater during the last twelve years. He was well nourished; his speech was slow, drawling, and indistinct; the nodding movements of the head were present; there was slight slow nystagmus on looking to the extreme right or left; the pupils and optic discs were normal; knee-jerks were present; there was no rigidity of the legs, no ankle-clonus, no alteration in common sensation; the walk was markedly ataxic; there was also incoördination of the hands and arms.

Case 3.—F. B., aged fifteen, schoolboy, nephew of the preceding. He said that there was nothing the matter with him. His

walk, however, was slightly ataxic, the feet being kept well apart, and he had considerable difficulty in turning round quickly; he also swayed considerably and almost fell when walking or standing with the eyes shut; the pupils and optic discs were normal; the speech was natural, though rather slow; there were no nodding movements of the head; knee-jerks were absent; there was no impairment of sensation and no rigidity; he had incoördination of his hands and arms, as in touching his nose or picking up a pin, and said that when trying to play football he almost always missed the ball.—*The Lancet*, *January* 21, 1893, *p.* 139.

20.—RHEUMATIC (PERIPHERAL) NEURITIS ASSOCIATED WITH DISTINCT JOINT AFFECTION.

By Henry Handford, M.D., M.R.C.P., Physician to the Nottingham General Hospital.

It is the custom, especially in Germany, to call cases of peripheral neuritis which appear to be due to exposure, or to the local application of cold, rheumatic. I do not use the word in that sense, but to indicate that the neuritis was an incident in an attack of acute rheumatism, and was probably due to the same poison. Muscular wasting following nerve degeneration has been carefully investigated in chronic rheumatism, more especially in osteo-arthritis. A few cases of neuritis with muscular wasting in acute rheumatism have also been previously described. Had it not been for the distinct general joint affection it might have remained doubtful whether the whole illness was not a neuritis. For neuritis may certainly be accompanied by fever with local pain, redness, and swelling. The close relation of both gout and rheumatism to disorders of the nervous system, as was so strongly insisted upon by Addison, makes the occurrence of distinct neuritis in acute rheumatism still more interesting. No doubt many painful affections are mistaken for rheumatism, and Addison's warning is still needed: "Gentlemen, beware of rheumatism." But it is not necessary to go to the opposite extreme, and deny the rheumatic origin of many distinct attacks of peripheral neuritis.

Case.—M. W., aged 19, pupil teacher, was married two years before admission, but her husband died of phthisis in five months, and she had no children. There was no history of rheumatism in the family. Her father died of phthisis. She had an ill-defined illness three years ago, in which she lost the feeling in portions of her hands, but they completely recovered. She considered that three weeks before admission she took cold

by sleeping in a damp bed. Ever since she had had fever, pain, redness, and swelling of her joints, profuse sweats, pain in the loins, and frequent micturition.

On admission (April 4th, 1892) she presented the ordinary appearance of a case of subacute articular rheumatism. The temperature was 101·2° F., but under salicylates it quickly fell to the normal, with relief to the pains. All the joints of the legs and arms on both sides had been affected, but the phalangeal joints were specially enlarged. On closer examination it was found that both arms and forearms between the joints were greatly swollen and œdematous, so that the nightdress had to be cut to remove the sleeves. There was a mitral systolic murmur (which remained permanently). She had some menstrual disturbance, and there was temporary retention of urine.

Three days after admission, when the pain and most of the swelling of the joints and limbs had subsided, she complained of numbness of the middle, ring, and little fingers of the right hand, and of the whole of the left. The patient stated that a few days previously the whole of the left forearm had been numb, but she had not mentioned it. On examination there was analgesia and anæsthesia over the whole of the left hand, back and front, up to three inches above the wrist—higher on the radial side than the ulnar. On the right side the three fingers on the ulnar side and the ulnar half of the hand up to one and a half inch above the wrist, were affected. There was no perceptible thickening of the ulnar nerve, and it would be noticed that the anæsthesia did not follow the distribution of any one nerve trunk. The knee-jerks and triceps-jerks were both present, but the wrist-jerks were absent on both sides. Sensation was tested elsewhere and found normal. The skin was desquamating on both forearms. There was evidently slight subacute nephritis with abundant albumen, and a few granular casts. The albumen gradually diminished, and during the latter part of a tedious convalescence completely disappeared. There was a slight fresh rise of temperature from April 12th to 17th, accompanied by swelling of the left arm, but no joint affection.

It should be noted that, notwithstanding the cutaneous anæsthesia and analgesia, there was distinct hyperæsthesia of the sensory nerves of the affected muscles shown on grasping the muscular masses. This continued for a long time, and there was still tenderness on May 25th, when muscular wasting was first noticed in the thenar group of the left hand and the hypothenar group of the right. Both groups of affected muscles reacted to faradism, but less briskly than the unaffected muscles. To galvanism the reaction was diminished in degree, and K.C.C. was equal to A.C.C., showing slight degeneration.

By June 8th the wasting was very evident, and affected the dorsal aspect more than the palmar. Sensation remained unaltered, the movements were returning, but the patient could not play the piano. There was no affection of the nails or glossy skin. The knee-jerks continued very poor.

On July 20th she looked stout and well, muscular wasting was scarcely noticeable, and sensation was returning, but was not yet completely restored.—*British Medical Journal, Nov.* 19, 1892, *p.* 1101.

21.—ON HYSTERICAL PERIPHERAL NEURITIS.

By J. S. Bristowe, M.D., F.R.S.

The cases to which I wish to call attention are cases of what I would venture to term hysterical peripheral neuritis. I suppose it will be admitted, at any rate I believe, that both inflammatory and degenerative changes may result from functional nervous disturbances. The first case is one that seems to me of singular interest, and I will narrate it, therefore, in some detail.

Case 1. Hysterical Peripheral Neuritis.—A. S., a governess, aged 20, was admitted under my care on February 21st, 1891. Her mother, who was highly hysterical, and for some years before her death had suffered from hysterical paraplegia, died when A. was a young child. Shortly after this event her father deserted his family, and left them on the hands of his relatives. Her health, excepting in one particular, has been fairly good. When nine years old she either hurt, or fancied she hurt, the little finger of her left hand, which became swollen and painful. The swelling and pain rapidly spread to the rest of the hand and to the wrist, which remained affected and useless for some months. Since this time she has been liable to recurrences of her malady, coming on usually twice a year, in the spring and autumn. Her attacks begin with pain referred to the outer side of the left arm just above the elbow; which, after lasting for about ten days, is followed by swelling and pain beginning in the little finger and then soon extending to the hand and forearm. The pain is sometimes of a throbbing cutting character, sometimes burning, sometimes a mere tingling. The parts are tender and stiff, and she is unable to close her fingers or bend her wrist, or indeed to make any use of the hand and forearm. The whole attack generally lasts six or seven weeks; and, although pain is often aggraved at night, she sleeps on the whole well. The bowels tend to be confined, the catamenia

scanty and irregular. Her present attack began on February 15th, with pain of the usual character, and in the usual situation; and swelling and pain in the hand came on on the 19th.

She is a stout, healthy-looking girl. The left fingers and hand, and lower part of the forearm, are uniformly congested and swollen, the redness and swelling fading away gradually upwards. The parts are stiff, painful on movement, and tender. But there is no appreciable heat of surface, and the palm is moist. There are no red lines extending up the arm, and no enlarged or painful glands. In all other respects she is quite well. Pulse 84, temperature 97·4°.

During the next seventeen days the symptoms tended to increase in severity. The swelling and redness became greater, and extended over the whole forearm; the affected parts became very tender and painful, and she lost all power of voluntary movement in the fingers, which were held apart and slightly curved, and in the wrist, which was kept nearly in a straight line with the arm. Moreover she complained of pain and tenderness in the outer part of the upper arm, just above the elbow, and of pain extending thence to the shoulder, at the back of which there was an area of extreme tenderness. She could move the arm, however, at the shoulder freely. Occasionally the swollen parts became livid, and cold both to her own feelings and to touch. Sensibility was impaired, and she failed to feel warmth even when the hand was plunged into hot water. The joints themselves remained perfectly healthy.

She was treated in the first instance with arsenic, the continuous current, and the local application of belladonna and chloroform. About March 10th linseed meal poultices were ordered, in the hope that the continuous application of moisture and warmth would improve the circulation in the affected parts and remove the swelling. These had some beneficial effect; but it was found impossible to keep up a continuous high temperature by their means; and in fact although the arm looked and felt better, she complained that it was now almost continuously cold and livid. On the 14th, therefore, this treatment was discontinued, and she was sent to bed, and her arm, from the elbow downwards, was placed in a trough filled with water, which was maintained at blood heat. This treatment proved highly successful. The pain, discoloration, and swelling rapidly subsided; and on the 19th the following note was taken: "There has been continuous improvement in the condition of the hand and arm. The swelling has now completely disappeared, the pain is quite gone, even on pressure; she can move her fingers and wrist perfectly well, and can appreciate heat which previously she was quite unable to do. There is, however, some little pain about

the shoulder when she moves it; but this is perhaps due to the constrained position of the arm while kept in the water-bath."

She was discharged quite well on March 22nd.

After leaving the hospital she obtained a situation as a resident governess, and for three or four months remained well. Then she caught cold, and suffered on and off from bronchitis, which, though not severe or sufficient to make her lie up, interfered to some extent with her work, and thus caused much mental worry and anxiety. Early in September her old symptoms gradually returned. Being anxious to retain her situation she tried for a time to conceal her sufferings. On September 23rd, however, she had to give up and come into the hospital again under my care. The course of events on this occasion was exactly similar to that in her previous illness, and she appeared to benefit largely by the same treatment. At any rate, her illness was of shorter duration than the other, and she was discharged well on October 7th.

She again took a place, and once more, at the end of a few months, had to leave it, having again for a week or two battled in vain with her old enemy. Possibly from not having lain up soon enough, this was a more severe attack than any she had latterly experienced. The arm became affected in its whole length, and also a considerable area, including the shoulder and the upper and back part of the same side of the chest. This latter was the region to which on former occasions she had referred a good deal of pain and tenderness: but now there was swelling and the pain and tenderness were exceedingly acute.

She was admitted on March 29th of the present year, under my colleague, Dr. Sharkey, and treated mainly as she had been treated before. But it was impossible to apply a continuous hot bath to the shoulder and back, and after a time the pain here was much relieved by the use of blisters. The most interesting circumstance on this occasion was that, when the inflammation and swelling subsided, the muscles of the forearm for the first time wasted to some extent, and the wasting was attended with slight alteration in the electrical reactions. She left on May 7th, and at the present time her arm is quite restored.

This case recalled to my mind another which had been for a short time under my care a year and a half previously, but in which at the time I felt no particular interest, to which I am sorry to own I paid no special attention, and which, had it not been for A.'s case, I should have forgotten.

Case 2. Anæsthesia with Œdema.—A. A., aged 18, admitted September 23rd, 1889, had been a backward child, and was since birth liable to rheumatism and cough. For a year past she had complained of numbness, loss of sensation, and weakness, in

both arms, and of pain between the shoulders. She stated that her hands had become swollen and the skin hard and thickened during the last few weeks. She has hard, solid œdema of both hands and forearms, the skin of which parts is thick, wrinkled, and harsh. This harshness extends along the outer aspect of the upper arms to within two inches of the shoulders. The affected parts are hard and brawny, and the backs of the hands, which are specially swollen, pit readily. The flexor surfaces are more pliable than the extensor. The fingers are swollen and hard like the rest of the hands, conical, and pointed at the tips. The nails are deformed, deeply grooved, and scaly. There is almost complete cutaneous anæsthesia over the affected areæ, but this is less marked on the flexor aspects of the forearms and fingers and in the palms than elsewhere. She moves her wrists fairly well, but she cannot close her fingers or extend her thumbs. Strength of arms fairly good. There is no affection of lower extremities, of rectum or bladder, and all her visceral organs appear to be healthy. A few days later it was noted that she had complete loss of sensation in the upper extremities, upper part of chest, and sides of neck. She left without any material change in her condition on October 9th.

Case 3. Hysterical Peripheral Neuritis.—Within the last few days I have seen in consultation another case which seems to me to belong to the same category. The patient was a young lady, aged 18, of a highly neurotic stock, and herself always highly neurotic, and without the faintest suspicion of addiction to alcohol, of plumbism, or of any recent acute febrile disorder. Nearly two years ago she was sent to school in Paris, and when there she became listless, weak, and anæmic, and her catamenia ceased. While in this state she had two or three fainting attacks, apparently brought on by being made to exert herself beyond her powers. Later her legs became weak, and finally she lost power in them absolutely. She was at this time seen by Professor Charcot, who regarded her case as one of hysterical paraplegia. It appears that the tendon reflexes were at that time exaggerated. She was brought back to England about a year ago, and, under appropriate treatment, soon recovered perfectly; and, although still neurotic, she has remained fairly well, at any rate without definite symptoms of disease, until a few weeks ago. During the latter period symptoms have been gradually developing, yet within the last week or two she has been able to go to parties, and to take short walks.

She is thin and somewhat pale, but certainly not definitely anæmic. She is low-spirited, and indisposed to take food, but does not suffer from nausea or uneasiness after it. She complains of numbness and tingling in the fingers, and apparently their tips are quite without feeling. She can execute all

varieties of movements at the wrist and finger joints, but her grasp is extremely weak, and she has a difficulty in using her hands in writing and other delicate operations. The muscles of her forearms and hands are markedly tender, especially those of the right side, and on this side there is some tenderness in the muscles of the upper arm. Her legs are considerably œdematous from the knees downwards, and pit on pressure; and the feet (but more especially the toes) are congested, and on exposure to the air become livid. She does not seem to feel when touched with the fingers or a pin in any part of the lower extremities below the knees; but if the limbs be grasped she recognises the grasp as a sense of coldness, and when she is actually pricked with a pin she seems to feel it anywhere; knee-jerks absent. She cannot flex her feet beyond a right angle, nor can she extend her toes. The muscles of the calves and fronts of the legs and the feet are very tender. She can walk without assistance, but with difficulty. She watches her own movements, moves slowly, and with her feet wide apart, and lifts her knees unduly high, apparently in order to avoid catching her toes. When she closes her eyes her movements become wild and uncertain, and she would soon fall if not protected. Her sight is apparently good, and the pupils act normally, but she does not follow well with her eyes. On following my finger to the right or left, upwards or downwards, she says she sees one finger only; but when I make her look at it directly in front she says she sees two, and apparently the eyes do not then converge. I should have regarded this as the result of mere laziness but for one fact, and that is that on one occasion, as I made her look to the extreme left, the right eye after a few moments rambled back to the median position, leaving the left still looking at my finger for a second or two.

There are no other paralytic conditions present, nor any other area of anæsthesia or impairment of the special senses beyond those already described. She has complete control over the rectum and bladder. The thoracic and abdominal viscera are apparently all quite healthy, and there is no evidence of disease in the spine. The only other noticeable fact is that for some time past she has been passing very little water, often not more than a pint in twenty-four hours. But this, which is concentrated and of rather high specific gravity, contains neither sugar nor albumen.

The first of the three cases seems to me to be a perfectly clear case. The neurotic family history, the recurring attacks (at any rate, simulative) of neuritis always ending in complete recovery, all point, I think, to a hysterical or neurotic cause, while the symptoms during their presence are typically those of localised peripheral neuritis. I regret that I did not pay the second case

the attention it deserved. Had I seen it a few months later I should have regarded it with great interest. I think, however, it belongs to the same category as the first. The last case I have only seen once, and perhaps may never see again. But the symptoms she at present labours under are obviously those of neuritis; and looking back both to her previous history and her present state I cannot but think it will be admitted that her present symptoms are also essentially hysterical.—*British Medical Journal, November* 19, 1892, *p.* 1098.

22.—ON PERIPHERAL NEURITIS IN DIABETES.

By R. T. Williamson, M.D., M.R.C.P., Medical Registrar to the Royal Infirmary, Manchester.

Whilst some of the nervous affections occurring in diabetes are to be attributed directly to the diabetic condition, others, such as hemiplegia from cerebral hemorrhage or softening, are accidental complications, or are not directly dependent on the disease. The occasional occurrence of various forms of paresis and paralysis and the frequency of neuralgic pain in the limbs have been mentioned by many of the older medical writers, but it is only within recent years that any of these symptoms have been attributed to peripheral neuritis.

Some of the nervous symptoms met with in diabetic patients strongly resemble those of alcoholic and other forms of peripheral neuritis.

Ziemssen was the first, in 1885, to attribute the neuralgia so often observed in diabetes to peripheral neuritis. Soon afterwards Hoesslin, and at a later date, Eichhorst supported this view.

Pryce has reported a case of diabetes with ataxic symptoms, in which the peripheral nerves showed evidences of neuritis.

Leyden, Althaus, Charcot, Buzzard, Auche, Burns, have reported cases of peripheral neuritis in diabetes, or, to be more exact, cases presenting symptoms similar to those of neuritis from alcohol or other causes.

The proportion of cases of diabetes that suffer from marked symptoms of peripheral neuritis is very small. But cases presenting slight symptoms are common.

On an analysis of sixteen cases recorded by various authors during the last four years, the following description of symptoms is based. Slight symptoms of neuritis, such as pain in the legs, cramps, numbness, tingling, tenderness, and absence of knee-jerks are not unfrequent. Cases of diabetes presenting marked

paresis or paralysis appear to be comparatively rare. The onset of symptoms is gradual or sub-acute.

Motor Symptoms.—Paresis or paralysis, when present, most frequently affects the legs—neuritic paraplegia (Buzzard) or diabetic paraplegia. In some cases (Buzzard and Charcot) the anterior tibial muscles are chiefly affected. There is dropping of the toes and feet, and the patient is unable to dorsiflex the feet. In other cases (as in three recorded by Burns) the paralysis affects chiefly the muscles on the front of the thighs, supplied by the anterior crural and obturator nerves, and the symptoms are sometimes much more marked on one side than the other. In a case recorded by Auche these muscles were affected on one side only, and the patient was unable to go upstairs. In some cases the motor symptoms are described simply as weakness in the legs. The arms may be affected without the presence of any paralysis in the legs. One arm only may be paralysed, or one arm may be affected at first, but at a later date both may be affected. In other cases the muscles of the shoulder and upper arm may be affected on one or both sides; or the paralysis may be localised to a group of muscles, as the muscles supplied by the ulnar nerve, or to a single muscle, as the deltoid.

The affected muscles are generally wasted. In one case they are said not to have been wasted. The knee-jerks are absent when the legs are affected. Diminished excitability to electricity, and partial or complete reaction of degeneration have been often observed in the affected muscles.

The sensory symptoms are often more marked than the motor, and may be present when the motor symptoms are very slight or absent. When motor symptoms are present, the sensory are generally localised in the same region; in the legs below the knees, where the anterior tibials are chiefly affected; in the front of the thighs where the muscles of this region are chiefly affected; in the arm, or in the region of the ulnar nerve, or circumflex nerve. The hands and feet are often affected. In some cases in which the legs are chiefly affected, sensory symptoms are also present in the hands, and the grasp is weak.

The sensory symptoms are: Pain, neuralgic in character, often described as intense or violent, shooting or tearing; hyperæsthesia, tenderness and pain on pressure; tingling, numbness; sometimes a sensation of coldness in the hands and feet. Diminished tactile sensation is rare, but even anæsthesia may occur; also diminished sensation to pain is recorded. Neuralgia often occurs in diabetes without motor symptoms, and is characterised, according to Berger, by its spontaneous origin, frequent localisation in the branches of the sciatic nerve, sural and plantar nerves, by the violence and long duration of the

attacks, by the occurrence of vaso-motor disturbances in the district of the affected nerves, and by its resistance to ordinary treatment for neuralgia, but by its improvement under anti-diabetic treatment. The cause of neuralgia, at least in a certain number of cases, is probably neuritis. In some cases the nerves affected have been noted to be tender to pressure.

The condition of bladder and rectum has frequently not been stated, and therefore probably it was normal. In other cases they were stated to be normal. In one case there was slight incontinence of urine.

Ulcers on the feet, shining and glossy skin, ecchymoses, shedding of the nails, and œdema have been recorded. Herpes zoster has also been recorded.

Ataxia has been occasionally noted.

Leyden recognises three forms of peripheral neuritis in diabetes :—

(1) The *hyperæsthetic or neuralgic* variety, in which there is more or less severe pain. This variety may occur in the form of neuralgia (trigeminal neuralgia, sciatica, &c.) or as a multiple neuritis in the feet, legs, and hands. Usually there is weakness of the affected parts. Pain stands out as the prominent symptom.

(2) The *motor or paralytic* form. In this form there is more or less marked paralysis of muscles of the legs or of other muscular groups. The knee-jerks are lost. Electrical changes are sometimes found. Often in this form there are neuritic pains.

(3) The *ataxic* form, so-called pseudo tabes. In this variety, besides ataxia, there are sensory symptoms, numbness, formications in the feet. The muscular power for coarse movements is maintained, or not essentially diminished. The tendon reflexes are lost. But in these cases the pupils react to light and accommodation. In this respect, therefore, the cases differ from many cases of true locomotor ataxia. Some neurologists, however, doubt the occurrence of real ataxia.

As Charcot points out, however, occasionally, though *very rarely*, a patient may present symptoms of true tabes dorsal with diabetes. He recognises two groups of possible cases. (1) In cases of tabes dorsalis, symptoms of diabetes may occur, the latter being a complication, and due to the extension of the lesion to floor of the fourth ventricle. In these cases gastric and laryngeal crises are often observed. Such cases, however, are exceedingly rare. Marie and Guinon examined the urine in 50 cases of tabes without finding glycosuria in a single case. Gillas found glycosuria three times only in 100 cases of tabes. (2) There is the possibility of the occurrence of tabes and diabetes in the same patient as a coincidence.

Pathological Evidence.—In most of the cases of peripheral neuritis recorded, the diagnosis rests on clinical evidence—the similarity of the symptoms to those of neuritis produced by other causes; the absence of any symptoms definitely referable to the spinal cord or brain, and the absence of any of the other recognised causes of neuritis, such as alcohol, lead, diphtheria, &c.

In a few cases the diagnosis has been confirmed by post-mortem examination—in one case reported by Pryce, in two cases reported by Eichhorst, and in three reported by Auche.

In all these cases microscopical examination revealed the existence of parenchymatous neuritis in the nerves of the affected parts.

In one of Auche's cases there was paresis of the legs, muscular cramps, and gangrene of the right foot. In another case itching, tingling, and pricking pains in the feet, legs, and hands. Knee-jerks absent. In a third case violent cramps in the calves at night, slight diminished sensation to a pin prick on the dorsal surface of the forearms, sub-inguinal hemorrhages, shedding of the nails.

In one of Eichhorst's cases the knee-jerks were absent, but there was no paralysis and no disturbance of the sensation. In the second case the knee-jerks were absent; the patient was able to move the arms and legs, but there was marked muscular weakness of the limbs. Examination of the anterior crural nerves in both cases revealed parenchymatous neuritis.

In Pryce's case there were perforating ulcers of both feet: diminished cutaneous sensibility of both feet and also of the lower thirds of both legs. The knee-jerks were absent. It is also stated that the patient had ataxic symptoms. The examination of the peripheral nerves (by Mr. Bowlby) revealed parenchymatous neuritis, but the ganglion cells of the lumbar region of the cord were atrophied also.

In most of the cases recorded the neuritis has occurred in patients over the age of 50 (in twelve of sixteen cases).

All writers on the subject agree that the neuritis does not bear any relation to the amount of sugar in the urine. In many of the cases recorded the amount of sugar has been small: in a case reported by Burns not quite one per cent., and in another case between one and two per cent. Further, the symptoms continue if by strict diet the sugar can be made to disappear from the urine.

The above facts seem to indicate that the neuritis is not due directly to the presence of an excess of sugar in the blood. Auche has made experiments on the lower animals, and exposed the sciatic nerve to the action of different fluids containing sugar. His experiments show the sugar has only a slight action on the

nerves, similar to that produced by water, and the changes in the nerves are probably due to some other cause—the poverty of the tissue in water, the general disturbance of nutrition, acetone, or some unknown chemical substance in the blood. Gowers believes that the neuritis is due to some toxic substance comparable to acetone, but not acetone, and thinks the fact that the reduction of the amount of sugar formed has but little influence on the condition, suggests that the poison is not a product of the decomposition of sugar, but a material formed in place of sugar by some modification of the chemical processes that lead to the increased sugar production.—*Medical Chronicle, November*, 1892, *p.* 87.

DISEASES OF THE ORGANS OF CIRCULATION.

23.—ON DIGITALIS IN AORTIC REGURGITATION, &c.

By W. H. Broadbent, M.D., F.R.C.P., Physician to St. Mary's Hospital.

In aortic regurgitation failure of compensation is manifested in two distinct ways, and there are two different modes of death. In one the effect is defective propulsion of blood into the arterial system, manifested by faintness, giddiness, and sudden weakness of the legs, sometimes by anginoid pain ; death is by syncope. In the other there is obstructive backworking through the lungs and right heart, giving rise to venous obstruction and dropsy, exactly as in mitral insufficiency. There are, in effect, aortic physical signs with mitral symptoms.

We have in this, it appears to me, an explanation of the different views as to the influence of digitalis in aortic insufficiency. When the tendency indicated by the symptoms is defective propulsion with failure of arterial blood supply to the brain, the effects are uncertain and even doubtful. While sometimes apparently beneficial for a while, a frequent result is the production of irregularity of the pulse with aggravation of the symptoms, and occasionally of vomiting attended with rapidly-increasing weakness of the heart's action. Cases are met with, indeed, in which there is grave reason to suspect that it has precipitated a sudden fatal termination.

When, on the other hand, the symptoms are due to secondary dilatation of the left ventricle not adequately neutralised by hypertrophy, with or without mitral regurgitation, and to the effects of this upon the pulmonary circulation and right ventricle, we have exactly the same opportunity for the beneficial influence

of digitalis in reinforcing the right side of the heart, and the same favourable results as in mitral regurgitation. The effects, indeed, are sometimes much more striking, and the removal of dropsical effusion more rapid. I have observed, however, that not uncommonly patients suffering from serious aortic insufficiency, after recovering from the mitral symptoms, die suddenly from failure of the left ventricle, and this whether the digitalis has been continued or left off, and sometimes before the patient has begun to get up and move about.

There has recently been a very interesting discussion as to the effects of digitalis in aortic incompetence, turning mainly on theoretical considerations relating to the prolongation of the diastole and the increased regurgitation which this will permit. The question must be determined entirely by the experience of competent observers, but it is always a good thing to have a clear and accurate idea of what is taking place; and this, according to my apprehension, will be as follows: At the end of systole, the first part of the diastole is not a mere passive filling of the ventricle by blood entering from the auricle (and in the case under consideration from the aorta), but a sharp rebound from extreme contraction, constituting a sudden active dilatation, which sucks in the blood. In the normal heart this is an important part of the cardiac rhythm, and it is still more important when the ventrical is enormously dilated and hypertrophied, as it is in aortic incompetence. The blood thus entering the ventricle by its own suction action will constitute its main charge, and a much larger proportion of it will rush in through the large auricular-ventricular opening than through the comparatively small chink left between the damaged semilunar valves, even if the pressure in the aorta is high. The main charge of the ventricle is thus obtained from the auricle. During the remainder of the diastole some additional blood enters the ventricular cavity and distends it, and now the regurgitant stream from the aorta comes into competition with the onward flow from the auricle, and the relative pressure on the two sides will be an important factor in the determination of the proportion which will enter from the auricle and aorta respectively. The size of the two openings will be another factor, and a third will be the amount of blood which the ventricle is prepared to receive; the estimation thus becomes extremely complex. If we suppose the ventricle to be absolutely full and incapable of further distension, not only will the inflow from the auricle be stopped, but, the pressure in the aorta being higher, the current will actually be reversed unless this is prevented by closure of the mitral valve. If, on the other hand, the ventricle can accept a considerable further amount of blood, a certain proportion of it will obtain admission from the auricle, as the whole cannot

force its way in from the aorta through the much smaller orifice in the time allowed. So many of the factors of the problem being unknown, it is obvious that it cannot be resolved on theoretical grounds.

Digitalis in Aortic Stenosis.—Aortic stenosis is a more serious condition than is generally supposed, if we take only cases in which the obstruction is real, and do not consider every systolic aortic murmur to indicate narrowing of the orifice. Like aortic regurgitation it leads up to a fatal termination in two ways—directly by limiting the supply of arterial blood, and indirectly by giving rise to back pressure in the pulmonic and venous circulation through the intervention of dilatation of the left ventricle. It is when symptoms arise from the latter that digitalis is useful. This drug is even less competent to overcome the direct effects of obstruction than of regurgitation, and the left ventricle may be injured if stimulated to drive its contents through a narrowed orifice. More relief is often obtained by relaxing the arterioles by means of nitroglycerine, deducting thus the arterio-capillary resistance from the total work with which the heart has to contend.—*British Medical Journal*, *November* 26, 1892, *p.* 1154.

24.—ON DIGITALIS IN MITRAL DISEASE.

By W. H. Broadbent, M.D., F.R.C.P., Physician to St. Mary's Hospital.

Mitral regurgitation being the disease in which the action of the cardiac tonics is almost always beneficial, a study of the conditions presented may enable us to arrive at some comprehension of the way in which the good effects are brought about.

What takes place in mitral regurgitation is as follows :—The regurgitation into the left auricle dilates this cavity (there may be some hypertrophy of its muscular walls, but no compensatory influence of any consequence is gained thereby), and at the same time drives back the blood which is flowing towards the left auricle and ventricle by the pulmonary veins. The obstruction in the pulmonary veins necessarily gives rise to resistance to the onward flow through the capillaries, to overcome which increased pressure is required in the pulmonary artery, and therefore greater driving power on the part of the right ventricle. From this results hypertrophy of the right ventricle, which is the great compensating agency by which the leakage of the mitral valve is more or less perfectly neutralised. If the blood pressure in the pulmonary veins

could be maintained at such a point as to be greater than the pressure in the aorta, there would be no reflux into the auricle during the contraction of the ventricle, even were the mitral valve completely destroyed, but, however powerful the action of the right ventricle, this can never be absolutely the case; the walls of the pulmonary capillaries and veins and of the left auricle are too weak to resist such a distending force, and moreover the suction action of the left ventricle will always temporarily reduce the pressure in the left auricle.

Another change in the heart resulting from mitral regurgitation must be noticed. This is a dilatation of the left ventricle, produced by distension of this cavity during the defenceless diastolic period, by the high pressure in the pulmonary veins and left auricle. It involves some consecutive hypertrophy of the ventricular walls.

These familiar and elementary explanations are enumerated in order once more to emphasise the fact that the work of compensation for mitral regurgitation falls upon the right ventricle, and that when systemic venous stasis and other late effects of mitral regurgitation show themselves, it is because the right ventricle is beaten by the resistance in the pulmonary circuit, and can no longer keep up adequate pressure in the left auricle.

Applying now our knowledge of the physiological effects of digitalis, we shall see that the favourable results of its administration are due almost entirely to reinforcement of the right ventricle. On the left side of the heart and in the systemic circulation there will be produced a certain degree of arterio-capillary contraction, with slight increase in the peripheral resistance and in the intermediate arterial tension, and a more deliberate and energetic action of the left ventricle in systole, which makes room for a large volume of blood in diastole, while the elastic rebound at the end of systole exercises a better suction action on the contents of the distended left auricle. The hypertrophy of the ventricular walls, which will more than neutralise the increase of resistance in the peripheral circulation, and the greater capacity of the cavity would, in the absence of regurgitation into the auricle, result in the projection of a larger charge into the arteries at each systole. The effect of this is undoubtedly good, but the regurgitation is a set off against it, and this will be increased with the increase of resistance in the arterial system. So far, however, as these good effects on the left ventricle and systemic circulation are concerned, they would be much more conspicuous in aortic regurgitation than in mitral regurgitation, since the ventricle is stronger and its capacity larger, and yet we do not find that digitalis is more useful in this affection, but very often the contrary.

Looking now at the effects upon the right side of the heart and the pulmonary circuit, there may or may not be contraction of the arterioles and capillaries in the lungs with increase of resistance. This could, however, in any case only be slight, while the ventricular walls being greatly hypertrophied, increase of vigour in their contraction will at once raise the blood pressure in the entire pulmonary circulation and in the left auricle. Improved pressure in the left auricle, as has been seen, will at once fill the left ventricle better during diastole, will resist reflux through the mitral orifice, and will increase the amount of blood thrown into the aorta.

Among the conspicuous favourable results of the administration of digitalis is diminished irregularity of the pulse. This is entirely due to the higher blood pressure in the left auricle, and the more regular supply of blood to the ventricle. Mitral incompetence is the one among the valvular affections which is specially liable to give rise to irregularity of the pulse. This will be understood from the following considerations. The left auricle is exposed to the respiratory variations of pressure, which its thin walls resist only imperfectly. When, therefore, these variations are exaggerated, as when the breath is held or when there is dyspnœa from bronchitis or asthma, the amount of blood carried on into the left ventricle will vary, and the pulse will be more or less irregular.

During inspiration the negative pressure will tend to keep the auricle dilated, and to prevent it from contracting properly, so that the ventricle will not have a full charge of blood, and its systole will be brief and abortive. During expiration the auricle will be compressed, and its contained blood will be forced on into the ventricle with opposite consequences. In mitral regurgitation a further effect will be that the negative pressure of inspiration will encourage the reflux into the auricle, while the positive pressure of expiration will oppose it. In this way—the ventricle sometimes being imperfectly, at other times perfectly, filled, sometimes sending back more, sometimes less, of its contents into the auricle—we have ample explanation of irregularity of the pulse. Now the lower the internal blood pressure in the auricle and pulmonary veins, the greater will be the effect of variations of external pressure, and the higher the pressure within the auricle the more independent it will be of pressure from without. It will be seen how digitalis steadies the action of the heart, and renders the pulse more regular.

Effects of Digitalis in Mitral Stenosis.—Examining now the effects of digitalis in mitral stenosis, we may perhaps see why they are less certainly favourable, and sometimes clearly unfavourable. In an uncomplicated case the left ventricle is neither dilated nor hypertrophied, and the arteries generally

are already small and contracted. No obvious advantage can be seen in further contraction of the arterioles, and, in point of fact, the symptoms are somewhat relieved by causing them to dilate. No great improvement in the output of blood, again, is to be gained by more vigorous contraction of the walls of the left ventricle, as they are not specially strong, and the cavity is small. But it would seem that increased vigour in the contraction of the right ventricle should have the same good effect here as in mitral regurgitation, and some beneficial influence is indeed very commonly observed at first. The conditions, however, are different. In mitral regurgitation the increased amount of blood driven into the pulmonary artery antagonises the reflux into the auricle, and finds its way more and more easily into the left ventricle, whereas it cannot be forced through a constricted mitral orifice beyond a certain rate of speed, and if the ventricle is stimulated to contract more than is required for this, it encounters an insuperable obstruction, and becomes embarrassed in its action. A common result is irregularity in the beats, accompanied by a sense of precordial oppression, and not infrequently the heart beats are in couples, the first of which alone reaches the wrist, the second having no aortic second sound.

In many cases of advanced mitral stenosis, the coupled beats can be produced at will by giving digitalis. The second of the two beats is evidently a supplementary systole of the right ventricle. There is a right ventricle impulse felt over the lower left costal cartilages, while the apex beat is scarcely, or not at all, perceptible ; at the second of the coupled beats both right ventricle sounds are heard, while the aortic second sound is absent, and, if there is a systolic mitral murmur as well as the presystolic, it is audible only with the first of the two beats.—*British Medical Journal*, *November* 26, 1892, *p.* 1153.

25.—ON PAROXYSMAL TACHYCARDIA.

By John Gordon Dill, M.A., M.D., Assistant Physician to the Sussex County Hospital.

[Dr. Dill's cases, eleven in number are omitted here.]

An abnormally rapid pulse is met with in the course of various diseases, notably in phthisis, rheumatic arthritis, scarlatinal nephritis, and in Graves' disease; also a temporary tachycardia may be induced by various causes, such as dyspepsia, mental excitement or undue physical exertion, but there has been described by several authors an affection in which the main

characteristic is a tendency to paroxysmal and recurrent attacks of palpitation, during which there are great mental distress, prostration and dyspnœa, with periods of intermission between the paroxysms, in which the rate of the pulse is normal or thereabouts. The temperature is sometimes raised during the attacks, and in some instances it appears to be constantly a little higher than normal.

The patient is usually extremely nervous, apt to suffer from digestive troubles, and is almost invariably quite incapable of work. Undue strain of body or mind, rheumatism and syphilis are the antecedent conditions of some of the recorded cases, but in many there is no previous history. In some instances the paroxysmal state of tachycardia has passed into a persistent one.

But there is another class of cases, arising very often from similar causes and following a similar course, in which the tachycardia is persistent, but with paroxysms of palpitation, and in which the persistent tachycardia during the intervals between the paroxysms may not be subjectively evident to the patient, although the attacks of palpitation are attended by the same feeling of nervous dread, prostration and shortness of breath, as in the former class. To distinguish these two classes of paroxysmal tachycardia I shall adopt the names "remittent" and "intermittent." Further, there is a third class of cases, presenting precisely the same symptoms, which are evidently atypical cases of Graves' disease. Now the connection between these three groups is very close; in fact, the same case may in its course pass from one class into another. I have already stated that cases are recorded which passed from the first class into the second—i.e., from intermittent to remittent tachycardia; and it is possible that in the remittent class this may be the usual course of events, although the transition may be very rapid; but the converse is also true, and the remittent tachycardia does sometimes become intermittent in the course of the disease and during recovery. Cases of the remittent type also may after a time develop one or more of the distinctive characters of Graves' disease, and, on the other hand, cases of Graves' disease may lose all their more distinctive symptoms except the tachycardia. The only absolutely constant symptom of Graves' disease is tachycardia, but we have Charcot's authority for the fact that in some cases of Graves' disease the tachycardia is paroxysmal and intermittent. Is it not a reasonable hypothesis that these three conditions are all due to the same pathological disorder, and are merely varieties of the same disease?

The pathology of this disease is still unfortunately very obscure. Amongst other theories, it has been attributed to recurrent irritation of the cervical sympathetic, to paresis of

the vagus, to a lesion of the myocardium or of the cardiac nerves or ganglia, and to a central nervous lesion. The last will probably turn out to be the correct explanation, as it best accounts for all the symptoms, but in the absence of facts of morbid anatomy the whole matter is at present in the region of surmise, and this want of knowledge of the pathology makes the treatment very difficult and very unsatisfactory. As regards drugs, digitalis and strophanthus appear to have no effect. Quinine, iron, arsenic and belladonna, although they are sometimes followed by improvement, are very unreliable, and the usual nerve sedatives and stimulants do not appreciably influence the course of the disease. The main point, I am sure, to which attention should be directed is to ensure the patient complete rest from work or strain, both of body and mind, in pleasant but unexciting surroundings. The general health must be carefully watched, and inter-current discomforts treated as they arise.—*The Lancet, February* 4, 1893, *p.* 242.

26.—THE CHRONIC INTERMITTENT FEVER OF ENDOCARDITIS.

By William Osler, M.D., F.R.C.P., Professor of Medicine in Johns Hopkins University.

[The detailed report of Dr. Osler's cures are here omitted.]

The type of endocarditis characterised by a protracted course and an irregular intermittent fever has been specially studied by Wilks, Bristowe, Coupland, and Lancereaux. In my Gulstonian Lectures (1885) its characters are thus described: The paroxysms may have the features of ague; the chill, hot stage, and sweating succeeding each other with regularity, and in the intervals there may be an entire absence of the fever. The quotidian type is the most common; the tertian has occasionally been described; and in rare instances two paroxysms have recurred within the twenty-four hours. The disease may be much prolonged, even to three or four months.

One of the first references I find to cases of this kind is in a footnote to one of Dr. Ormerod's Gulstonian Lectures in which a case of Dr. Bond, of Cambridge, is narrated—an instance of chronic valvular disease, with intermittent fever and diarrhœa, two paroxysms occurring in the day. The case lasted four months. In a remarkable case described by Dr. Wilks, during a six or seven weeks' illness, rigours recurred with such regularity that a tertian ague was suspected for a time, although the patient

was known to be the subject of heart disease. In some instances the existence of ague previously has rendered the condition much more puzzling. In several of Lancereaux's cases the patients had had intermittent fever a short time before; so also with one of Leyden's cases. But the most extraordinary case of the kind is recorded by Dr. Bristowe. A patient had ague in October, with chills once or twice a day, in an illness of six weeks. After an interval of two or three weeks they recurred in the second week in December, and continued until December 23. She was well for a few days, and then the attacks recurred after sleeping in a cold bed, and persisted until her admission to hospital on February 12. For the four weeks previous to entrance, the attacks came every twelve hours regularly. A murmur was noticed; but the history of ague was so clear, and the attacks so characteristic, that a suspicion of malignant endocarditis was at first not entertained. It was only after the failure of quinine, and a variation in the character of the paroxysms, that a diagnosis was reached. In this case, the most protracted with which I am acquainted, the condition persisted for more than five months, and Dr. Bristowe has informed me that he regarded the case as one of ulcerative endocarditis from the outset.

I have recently had under observation a remarkable case in which the symptoms persisted for nearly ten months; and through the kindness of Dr. Mullin of Hamilton, Ontario, I am able to give the notes of a second case in which the disease continued for eleven months. The clinical features of these two cases may thus be summarised: (1) Daily intermittent pyrexia for many months, the temperature rising to 102·5° and 104°, occasionally preceded by a distinct rigour, more commonly by feelings of slight chilliness. Following the pyrexia there was more or less sweating. (2) Progressive failure of strength, with varying intervals of improvement. (3) Physical signs of cardiac disease—in the cases here reported an apex systolic murmur, with hypertrophy of the left heart. (4) Development towards the close of the embolic symptoms more usually associated with ulcerative endocarditis, and cutaneous ecchymoses.

The anatomical condition in both cases was the same, namely, large vegetative outgrowths on the mitral valve.

The diagnosis of these protracted cases is often very difficult, and not unnaturally they are mistaken at the outset for malarial fever, particularly when daily chills occur. In other instances the disease is at first thought to be typhoid fever. In *Case* 1, prior to the onset of his illness, the patient was not known to be the subject of valvular disease; while in *Case* 2 it is very probable that an attack of rheumatism at the twelfth year laid the foundation for chronic mitral lesions.

In chronic valvular lesions, particularly of the aortic segments, there may be persistent fever, rarely however of a typically intermittent type, and in a majority of instances the cardiac features of the case predominate. The special interest of the group illustrated by these cases is the chronic intermittent fever with progressive failure of health and strength, without dyspnœa, anasarca, or other features of valvular disease.—*The Practitioner, March*, 1893, *p.* 181.

DISEASES OF THE ORGANS OF RESPIRATION.

27.—THE TREATMENT OF LARYNGEAL TUBERCULOSIS.

By Percy Kidd, M.D., F.R.C.P., Assistant Physician to the Brompton Hospital.

The general treatment of laryngeal tuberculosis is inseparable from that of the concomitant and more important pulmonary disease which need not be considered here. It is hardly necessary to remind you that in tuberculosis, as in all laryngeal affections, an approximately pure atmosphere is most desirable. Smoke, fog, dust of all kinds, and cold damp climates are to be avoided. A sheltered seaside place on the south or south-eastern coast of England will suit most cases. Spices, condiments, and very hot drinks should be eschewed. Tobacco-smoking is inadvisable, but in the case of confirmed smokers it may be politic to permit a strictly limited use of tobacco on the condition that they smoke in a large, well-ventilated room, or in the open air, and only after meals.

Coming now to direct local treatment, it may be said that the best results at present have been obtained with lactic acid, introduced by Krause. The following is the method adopted here:—A strong solution of cocaine (20 per cent.) is first brushed two or three times over the larynx with a cotton-wool holder, so as to ensure complete anæsthesia. After an interval of five minutes a 50 per cent. solution of lactic acid is then applied in the same way to the larynx, and is kept in contact with the desired spot as long as the patient can resist the inclination to cough. If the patient has much self-control the acid is applied a second or even a third time at the same sitting. This process is repeated at intervals of two or three days, or in certain cases every day at first. After two or three applications pure lactic acid is substituted for the weaker solution. As a rule, at least six or eight applications are required, at times far more. In one

outpatient the best results were not obtained until more than twenty applications had been made. It has been objected to this method that the pain caused by the acid is so severe and lasting as to render it inapplicable in many cases. We have had none of these unpleasant experiences here, a result which is to be attributed to the thorough preliminary cocainisation which is always insisted upon. In successful cases the ulceration gradually loses its active secreting appearance, being succeeded by granulation, and ultimately by cicatrisation. The selection of suitable cases is a matter of the utmost importance. In the first place, the constitutional and pulmonary conditions must be carefully gauged. Extreme debility, or nervous irritability, persistent pyrexia, and physical signs of advanced, or actively progressing pulmonary disease absolutely contra-indicate any idea of radical local treatment, on account of the discomfort and disturbance inseparable from the introduction of a brush or any other foreign body into the larynx. If no objections on these grounds be forthcoming, the laryngeal lesion alone remains to be considered. It is useless to apply lactic acid or any other local agent to an unbroken surface; in other words the existence of ulceration is an indispensable condition.

The more superficial the ulceration the better are the results to be expected from the treatment. Where the tubercular infiltration is mainly or largely submucous, the chances of any local application penetrating deeply enough are not very great. In a few instances of circumscribed deep infiltration we have seen good results from the cautious use of the galvano-cautery followed by the application of lactic acid. Here the superficial destruction caused by the cautery allows the acid to soak into the tissues and exert its desired influence. At the same time I cannot too strongly warn you that the insertion of the galvano-caustic point into the larynx is rarely indicated, and is not free from danger in unpractised hands.

Lactic acid is the only one of the many remedies recommended for this disease that has stood the test of time. No other application in our experience has resulted in definite cure. The objection may be made that the cases selected as suitable for this treatment are not of the gravest type, and are, therefore, more hopeful for any line of treatment. But when I tell you that the successful cases include instances of ulceration of the epiglottis and arytenoid region, and diffuse infiltration and ulceration of both vocal cords, it will be admitted that the lesions were fairly severe, and were not such as would naturally suggest a hopeful prognosis. Moreover, if we can arrest the disease for some time, as we often undoubtedly can, we may claim that this treatment is thoroughly justified, in spite of the fact that relapses are apt to occur, and a permanent cure is not

very often obtained. Seeing that the tubercular process has generally reached a fairly advanced stage before we have the opportunity of commencing the treatment, and recognising the fact that re-infection is always a danger to be dreaded, as long as infective sputum continues to be discharged from the lung, these results are not to be despised.

Amongst the many palliative remedies employed in laryngeal tuberculosis cocaine, menthol, and morphia are unquestionably the most valuable. Pain may be always relieved by painting the larynx a few minutes before meals with a strong solution of cocaine or with a 20 per cent. solution of menthol in olive oil, a spray of cocaine (2 per cent. solution), and the insufflation of one-sixth of a grain of morphia well mixed with a little starch, powder, or sugar of milk, and lozenges containing one-sixth to one-twelfth of a grain of cocaine may be used for the same purpose. In the worst cases the direct application of a solution of cocaine or menthol gives the most complete relief. As a rule, this will have to be done by the practitioner, but some few patients learn to apply the sedative solutions themselves to the epiglottis, or even to the arytenoid regions with sufficient accuracy. In cases where swallowing is rendered very difficult by destructive disease of the epiglottis some patients find that by lying flat on their stomach with the head hanging over the edge of the bed they can drink with comfort by sucking fluid through a tube from a vessel placed on the floor, a plan suggested by Wolfenden. An irritable laryngeal cough may often be much relieved by the inhalation of ten drops of a 20 per cent. alcoholic solution of menthol, or the same quantity of oil of peppermint poured on the sponge of an oro-nasal respirator. In other cases the vapor chloroformi co. of the Brompton Hospital Pharmacopœia may be employed with success. This consists of ten drops of chloroform and one drachm each of succus conii and glycerinum acidi carbolici added to half a pint of boiling water and used in an ordinary steam inhaler.

I have purposely refrained from enumerating the various drugs that have been lauded for the disease, preferring to confine my remarks to those we have found to possess some definite value.

I must not conclude without a brief reference to the question of tracheotomy. This operation has been recommended by Maritz Schmidt and Beverly Robinson as possessing a definite curative effect on the laryngeal disease by virtue of the physiological rest conferred on the larynx. This view is probably no longer seriously maintained by anyone, and it may be stated with emphasis that severe stenosis is the sole indication for the operation, an opinion long ago expressed by Morell Mackenzie and Solis Cohen. In pronounced cases of laryngeal

obstruction tracheotomy is inevitable, and generally gives great temporary relief, but the ultimate results are very unsatisfactory, the patients seldom surviving the operation for many months.

In a paper on "Tracheotomy in Laryngeal Phthisis" published in *The Lancet* in 1888, I have considered this question at some length. The great objections to tracheotomy in tubercular cases are these, the irritation produced by the cannula which has to be worn for the rest of the patient's life, the probability of tubercular infection of the edge of the wound, and, more important still, the interference with the mechanism of cough entailed by opening the trachea. In consequence of insufficient expulsion of sputum, infective secretion is retained in the bronchi and pulmonary cavities, and excites acute suppurative changes in the lungs. Furthermore, in the patient's violent attempts to dislodge the accumulation the tubercular material is very liable to be sucked back into remote bronchi with the production of fresh foci of disease.—*Medical Press and Circular, February* 15, 1893, *p.* 170.

28.—ON PERIPLEURITIS.

By P. Blaikie Smith, M.D., Physician to the Aberdeen Royal Infirmary.

The term peripleuritis is applied to an affection whose chief feature is suppurative cellulitis of the thoracic wall. It is not necessarily confined to the neighbourhood of the pleuræ, but it may extend downwards and involve the connective tissue of the loins and abdomen. The disease was first described by Wunderlich in 1861, and to him and to his countrymen we are indebted for almost all the information we possess on the subject. English writers, with the exception of Wilson Fox, are practically silent concerning it, and to this circumstance, as well as to the undoubted rarity of the complaint, is to be ascribed the slight attention which it has received in this country.

With reference to the etiology of the disease, it would appear from an examination of the cases published abroad that a close relationship exists between peripleuritis and pleurisy. Sometimes the former is the primary affection, producing as secondary results either pleurisy or pleuropneumonia, while in other instances the inflammation of the cellular tissue is the consequence of the disease in the pleural membrane. Occasionally it may arise from mechanical injury to the thorax, as in the case presently to be narrated, or it may be the solitary suppurative sign of pyæmia.

Clinical History.—The complaint is one of great rarity. It is commonest in the male sex. When uncomplicated, it generally begins suddenly with a rigour, accompanied, or soon followed, by catching pain in the chest and inability to lie on the affected side. At this stage it is indistinguishable from pleurisy, and the resemblance is still further strengthened by the presence, in some cases, of slight dry cough. Accompanying these symptoms are the usual disturbances attendant on pyrexia. The temperature is only moderately elevated. Physical examination gives negative results so far as intra-thoracic signs are concerned, but it will be observed that percussion is productive of great pain, especially in certain areas. Occasionally much suffering is complained of on moving the arm of the affected side, a circumstance doubtless due to the contraction of the pectoral muscles in the midst of the inflamed tissue. Within a few days signs of local inflammation make their appearance, notably in the areas previously tender on percussion; the inflammatory signs rapidly progress, and obscure fluctuation is discoverable in one or several situations. It is at this period that the disease most closely resembles pleuritic effusion. The percussion note is dull, vocal resonance and vocal fremitus are impaired, breath sounds are feeble or absent, the chest wall is swelled and œdematous, the circumference of the affected side is increased, and the intercostal spaces appear unduly separated. But when the abscesses are discharging the resemblance to pleurisy quickly subsides. The normal percussion note returns, the bulging of the side disappears, the intercostal spaces resume their ordinary relationship, vesicular breathing is once more heard, vocal resonance and fremitus are again restored, and all the subjective symptoms of the complaint rapidly diminish.

The following case is a good example of uncomplicated peripleuritis, the result of muscular overstrain:

Early in June, 1889, a sailor, aged 45, was sent to the Aberdeen Royal Infirmary, supposed to be suffering from pleurisy. His previous history was of no importance, but the account which he gave of his recent illness was highly significant. Towards the end of May he was at sea, and on one occasion, when he was steering the ship in very rough weather, a big sea coming unexpectedly almost tore the wheel from his grasp. During his efforts to retain control he suddenly experienced in his right chest pain of such severity as to prevent him using his arm. He was compelled to abandon his post and go below, and very soon afterwards he was seized with a rigour. Poultices were applied to the chest, but the skin was so sensitive that they had quickly to be discontinued. On arriving at port he was sent under my care. When I first saw him (on June 6th) he complained mainly of catching pain in his right side and

right loin. He breathed 24 times a minute, and, though the respirations were shallow, he did not suffer from breathlessness. He had a slight dry cough, which aggravated the pain; he could lie comfortably only on the left side, and he could scarcely turn himself in bed, chiefly owing to the pain in his loin. Upon examination the lower two-thirds of the right thoracic wall—anteriorly, laterally, and posteriorly—and the right loin were uniformly swelled, and in several places the skin was reddened. The chest wall was extremely hyperæsthetic. Both sides moved equally well on respiration, and the intercostal spaces, though somewhat prominent, were not unduly separated. On percussion the swelled areas gave a dull note; auscultation discovered faint vesicular breathing, unattended by adventitious sounds; vocal resonance and vocal fremitus were greatly diminished. Percussion produced much pain. The circumference of the right chest at the level of the nipple was two inches greater than that of the opposite side. The axillary glands were enlarged, painful, and tender, and the arm could not be moved owing to the pain in the thoracic wall. The heart presented nothing abnormal. The pulse was 90. The appetite was poor, and thirst was urgently complained of. The skin was covered with perspiration. The thermometer registered 101° F. Sleep was much disturbed, chiefly by pain in the side, and occasionally delirium was observed at night. The urine was of the usual febrile type.

During the next two days the swelling decreased in superficial extent, and gradually became concentrated in three regions: in the flank, near the nipple, and posteriorly from the angle of the scapula as far as the twelfth rib. The skin in these situations was much reddened and exquisitely tender, and palpation detected obscure fluctuation. Over the base of the lung, anteriorly and laterally (where the swelling had especially diminished) percussion and auscultation gave more satisfactory results than before. Next day there was no longer any doubt as to the presence of pus, and, accordingly, the three abscesses were freely incised. With the discharge of matter the symptoms rapidly improved. The swelling and œdema of the side subsided, the thoracic pain disappeared, and the physical signs became normal in every particular. Soon afterwards the patient was discharged.

It is worthy of note that the abscesses were not in any way influenced by the respiratory movements, and that they were quite independent of each other. Their situation was clearly extrapleural, and their origin did not depend on disease of the bony parietes.

Diagnosis.—The uncomplicated form of the disease may be confounded in the early stage with acute pleurisy. From this complaint it is to be distinguished by the presence of an

extraordinary degree of local hyperæsthesia, and of pain on moving the arm of the affected side. The rapid occurrence of suppuration, together with the absence of friction, &c., will also afford valuable diagnostic aid. But when the case is seen at a later stage, the obstacles in the way of an accurate diagnosis are far more formidable. The chief difficulty is with empyema. With an ordinary empyema there is not much chance of error, but it is otherwise with the rarer forms of that complaint. When empyema is of the perforating variety (the so-called empyema of necessity) the resemblance between the two diseases is often very remarkable. They may generally be distinguished, however, by attention to the following points.

(1) Peripleuritic abscesses are unattended by signs indicating displacement of organs.

(2) They are more frequently multiple than abscesses having a connection with the pleural cavity.

(3) They do not pulsate (as is often the case with perforating empyema), they are not capable of being diminished by pressure, nor do they as a rule communicate with each other.

(4) Their size is not generally influenced by the respiratory movements. Bartels, however, states that peripleuritic abscesses do occasionally vary with respiration, increasing with expiration, and decreasing with inspiration, but these phenomena are much more likely to be witnessed in perforating empyema than in abscesses whose origin and situation are extrapleural. In my own case they were absent. Bartels also mentions that the specific gravity of peripleuritic abscesses is about 1040, while that of purulent collections originating in the pleural cavity ranges from 1028 to 1032.

(5) In peripleuritis the boundaries of the lungs are observed to increase with a full inspiration, and areas presenting normal physical signs may be discovered between or below the different abscesses.

(6) Lastly, the diagnosis of peripleuritis will be supported by the appearance of suppuration in the loins or abdomen, and the presence of enlarged glands in the axilla of the affected side.

In some very rare instances a perforating empyema loses its connection with the pleural cavity, and becomes encapsuled in the thoracic wall, thus presenting signs that are almost identical with those of abscesses of peripleuritic origin. In arriving at a diagnosis in such cases, reliance must be placed chiefly on the clinical history; at the same time Bartel's observation as to the different densities of extra- and intra-pleural suppuration may afford a certain amount of diagnostic aid.

The only other complaints likely to be confounded with peripleuritic abscesses are caries of the ribs, resulting in the

formation of pus, and actinomycosis. In the former affection the probe will discover the existence of diseased bone, while in the latter the microscope will reveal the presence of the characteristically shaped ray fungus on which the disease depends.

Prognosis.—Simple cases generally terminate favourably, but when complications exist the result is much more uncertain. Many cases end fatally from pleurisy, while others succumb to pericarditis, peritonitis, acute nephritis, or to pyæmia.

The *treatment* of peripleuritis is mainly surgical, and is therefore considered to be beyond the scope of the present paper.—*British Medical Journal, February* 18, 1893, *p.* 346.

29.—ON FIBROID DISEASE OF THE LUNG.

By Sir Andrew Clark, Bart.

[The following excerpt is taken from one of Sir Andrew Clark's instructions on Clinical Medicine, given at the London Hospital.]

There are three different degrees of fibroid disease. First, there is the simple fibroid lung; secondly, there is the fibroid lung with dilatations; and thirdly, the fibroid lung, with or without dilatations, but with cavities. To the first we give the name of fibroid lung; to the second the name of bronchiectasis; and to the last the term "fibroid phthisis" has been applied.

In reference to fibroid phthisis it is very important to remember the definition we have given of pulmonary phthisis—that is to say, it is "that assemblage and progression of symptoms associated with and dependent upon the ulcerative or suppurative destruction of more or less circumscribed non-malignant deposits in the lung." This is our generic phthisis: varieties are indicated by the prefix of adjectives indicating the physical nature of the consolidation; and hence it is that any fibroid induration of the lung with cavities therein has been called fibroid phthisis. The next point is the essential characteristics of this fibroid disease of the lung. The first is that it is as a rule non-febrile except on occasions when intercurrent disease arises; the second is that it is chronic; the third is that it is compatible with prolonged average good health; and the last that I think worth while to mention to you upon this occasion is the fact that it is not compatible with the longest duration of human life A few years ago there was a patient in the female ward seventy-six years of age with fibroid phthisis of the left lung.

The next point of importance is the question of the complications to which this fibroid affection of the lung is subject.

There is first of all gastro-hepatic catarrh; secondly, albuminuria; thirdly, attacks of diarrhœa; fourthly, hæmoptysis; fifthly, dropsy; and lastly, nephritis. Now I here interpolate an important observation; it is, that I have never yet seen a case of this affection of ten years' standing without albuminuria, and that albumen frequently appears in the urine even before the second year of the disease. The last point to which I shall now advert in relation to this subject is the nosological position of fibroid disease. With respect to the first stage of it, mere fibroid consolidation or induration, there is no conflict of opinion. Concerning the second stage, that is with fibroid induration and dilatation, more or less, of the bronchial tubes, there is considerable discussion. A tendency has shown itself among certain observers to call this form bronchiectasis; but to call it by this term is merely to take note of one of the leading pathological factors of fibroid disease and to make it the distinguishing characteristic. I do not think there is anything intrinsically wrong in this, but it diverts the mind from the real cause of the bronchial dilatation, which is the fibroid affection of the lung, and this affection is either primary or secondary; rarely primary, but usually secondary to a dry pleurisy, to prolonged bronchitis, and to unreduced pneumonic deposits. The third term, "fibroid phthisis," is maintained on account of the definition which was given to you at the beginning of this instruction. But there are two nosological aspects of it; and here again there is the greatest conflict of opinion.

I wish to explain that in all these cases, and they have been many, no tubercular bacilli have been found; and hence in no sense of the word, according to the present state of pathological knowledge, can these be called cases of true tubercular disease, because at present the criterion of a tubercular affection is the presence of the tubercular bacilli in the affected part. Now in this fibroid induration one of the most interesting points is that in the greatest number of cases no tubercular bacilli make their appearance at any time. But in a certain small proportion of cases, when the lung has been attacked by colds or pleurisies or pneumonia, tubercular bacilli make their appearance, cavities form, and then in harmony with prevailing doctrines, the term tubercular-fibroid phthisis may be justly employed. And of course, if a case came before us here of fibroid disease of the lung, with or without dilated bronchi, with cavities and with bacilli in the expectoration, we should be bound in just loyalty to the present state of our knowledge, to call that case tubercular phthisis. But we are bound also to recognise the fact of the presence of the fibroid material which makes all the difference between what one may call ordinary tubercular

phthisis where there is no such large amount of fibroid disease and that kind of tubercular phthisis where there is. The difference appears in this way: that whenever in a case of tubercular phthisis the lung is riddled with small cavities and studded with tubercles surrounded by pneumonic exudations the progress of that disease is as a rule febrile and comparatively rapid; but, on the other hand, mark this, that whether bacilli be present or not the course of that case of tubercular phthisis in which the fibroid element dominates the rest of the pathological changes will be very slow, it will be unattended with fever, and it may last for many years.

I wish here to emphasise the fact that two marked secondary structural affections either accompany or follow the deposit of tubercle in the lung. One of these is the occurrence of a pneumonic exudation around the tubercles and the other is the appearance of a zone of fibroid tissue, and you can with perfect confidence foretell the general course of tubercular phthisis by the dominance of one or other of these secondary affections. If fibroid tissue for the main part surrounds the tubercles the progress of the case will be slow and fever will not be prominent; but if, on the other hand, pneumonic changes dominate the progress of the case will be rapid and fever will prevail.—*The Lancet, January* 7, 1893, *p.* 1.

30.—ON THE TREATMENT OF THE GASTRIC DISORDERS OF PHTHISIS.

By S. H. Habershon, M.D., F.R.C.P., Physician to the Royal Chest Hospital, London.

It is, perhaps, a truism to assert that the treatment of dyspepsia and of vomiting in phthisis should be directed toward subduing the progress of the lung disease. It is certain, however, that while local measures are necessary and even indispensable in some phases of the malady, they will eventually fail or have no permanent effect if the general treatment is neglected. This is especially the case in all the early stages of phthisis, or where gastric disorders have developed in a tubercular subject before any disease in the lungs could be detected. In cases of dyspepsia which seem unusually intractable it is a wise caution to examine the lungs, not on one occasion only, but repeatedly. An early clew may thus be gained as to the cause of the delicacy, and appropriate remedies applied. For such cases, as well as for all forms of atonic dyspepsia, it is unnecessary to insist on the great importance of pure and bracing air, and of residence on dry soil, to supplement the medicinal treatment.

Food of a bland and easily digestible kind should be ordered, and nothing irritating to any part of the mucous membrane of the alimentary tract should be allowed, either in the shape of food or drink –such, for instance, as condiments, vinegar, acid drinks, or alcohol in any concentrated form.

When vomiting is frequent or severe, it is hopeless to attempt to treat the patient unless rest in a recumbent position is insisted upon. In such cases also, liquid nourishment is advisable.

This is obvious enough when the symptom is the result of gastritis, but it is equally applicable in the distressing vomiting that sometimes results from the cough.

The sympathetic vomiting from irritation of the pulmonary branches of the vagus is most intractable and difficult to deal with. I have, however, several times seen the vomiting subside as soon as the patient was kept in bed and put on liquid diet. Medicinal treatment alone without these precautions will invariably fail. The object should be to allay any irritability of stomach that may be present, and bismuth in the form of carbonate or subnitrate, with bicarbonate of soda and some sedative, such as opium or morphia, hydrocyanic acid, or bromide of potassium, should be given internally. Soda-water is a valuable sedative, and is suitable either alone or with milk.

It must be remembered that the tendency of vomiting, from this cause, is to cease after a time as the disease in the lungs progresses.

In the large class of cases described under the name of *mechanical vomiting*, there is frequently an irritability of throat or stomach present.

In the throat affection, soothing and slightly astringent gargles will do much to lessen the irritability, and this applies also to all forms of pharyngeal irritation, from simple catarrh to the more painful forms of ulceration of soft palate or pharynx. I have found great advantage ensue from the use of a sedative gargle of bromide of potassium and opium in combination. To these I frequently add a mild astringent such as borax. Some cases of longer duration are benefited by more powerful astringents, alum or tannin, but these should be combined with opium or some topical anodyne. For ulceration of the fauces a powder of iodoform, borax, and morphia dusted or blown upon the ulcerated surface once or twice daily will frequently give great relief. When the throat is not specially sensitive the difficulty of expelling the sputum often gives rise to exhausting efforts of coughing. This is not always easy to deal with.

The internal use of expectorant remedies combined with iodide of potassium (three to five grains are usually sufficient), or alkalies, will do much to aid in the expulsion of secretion. Opiates may be given in small doses when the amount of secretion is

small and there is an undue irritability of the smaller bronchial tubes. If, as in some cases, there is any degree of spasm of the small bronchi, iodide of potassium and carbonate of ammonium in small doses are invaluable.

Care should be taken not to press ipecacuanha in any of its forms where the cardiac action is feeble. But all these internal remedies are sometimes unsuccessful, and I have then usually had recourse to inhalation. For moist inhaling I prefer a sedative alkaline inhalation, such as the *vapor conii* of the British Pharmacopœia, or better still a mixture of the succus conii with ammonia (ten drops of the liquor ammoniæ to the pint of hot water). When the cough is violent at night or in the early morning the dry inhalations are of more service from their greater convenience. Drops of the liquid remedy are placed upon the sponge or cotton wool in an oro-nasal respirator or in the form adopted by Coghill. Menthol or thymol dissolved in rectified spirit or spirit of chloroform may be used alone or in combination with compound tincture of benzoin and eucalyptus oil. A favourite prescription of mine is in use in the Royal Chest Hospital.

℞.—Ol. eucalypti, ʒij; Tinct. benzoin. comp., ʒiij; Thymol. v. menthol., ʒj; Spiriti chloroformi, ad ʒj. Ft. inhalatio.

Ten drops at a time, to be used on cotton wool in an oro-nasal respirator. Oil of peppermint alone is equally effective in lessening irritability, but is disagreeable to some on account of its smell.

By far the most obstinate cases to deal with are those in which there is excessive irritability of stomach. I do not here refer to cases of catarrhal gastritis. Vomiting follows shortly after a meal, and is often preceded by a sense of suffocation, without pain and with or without violent cough. (Sometimes the cough is very slight). Recourse may then be had to a drug which Sir George Paget first suggested to me and which I have frequently used with complete success. I refer to the use of liquor potassæ (five to ten minims for a dose), usually with calumba, with sometimes a few minims of Batteley's solution of opium or of laudanum added.

The success of this remedy is probably due to the fact that it counteracts the excessive acidity of stomach which is so frequently present, and which is itself sufficient to keep up a certain amount of irritability of the gastric mucous membrane. It is also of value where the bronchial secretion is viscid, from the property of alkalies of rendering such more fluid.

The well-known combination of creasote and opium is frequently of great benefit.

Finally, if all other remedies fail to control vomiting, a plan has been recommended by a French author for which he claims

absolute success. It has the disadvantage of being somewhat heroic. He injects hypodermatically one-sixth to one-fourth of a grain of morphine in the epigastric region, the patient being of course kept in bed or in the recumbent position.

My limited experience of this remedy is, therefore, that it is well worthy of trial in cases that are occasionally met with in which vomiting from this cause is exceedingly intractable.

In all cases of vomiting with the cough, the patient should be recommended not to exert himself after a meal, but to lie down for half an hour or an hour, while, as I have said, in extreme cases he should be confined to bed.

The treatment of pharyngeal irritability has been already alluded to, and for the relief of the more severe forms of ulceration of epiglottis or larynx, which cause both cough and vomiting from the difficulty and pain in deglutition, I have little to say.

In this distressing affection palliatives are the only remedial agents. The powder referred to, of borax, iodoform, and morphine, affords great temporary relief, and the cocaine spray applied before a meal will often render a patient able to take food who would otherwise find it almost an impossibility. Several forms of apparatus have been devised to direct the spray upon the epiglottis or into the larynx, by the fixture of a small nozzle at right angles to the horizontal tube leading from the bottle holding the liquid. A solution of one or two per cent. of cocaine is the most suitable strength, but care should be taken not to apply the remedy too frequently, as symptoms are very easily produced from absorption of the drug.—*The American Journal of the Medical Sciences, October*, 1892, *p.* 408.

DISEASES OF THE ORGANS OF DIGESTION.

31.—THE DIAGNOSIS AND SYMPTOMS OF ACUTE INTESTINAL OBSTRUCTION.

By Fredk. C. Shattuck, M.D., Jackson Professor of Clinical Medicine in Harvard University.

The first question which naturally presents itself is the early determination of the existence or non-existence of acute intestinal obstruction in the case in hand. This question is also first in importance. Its solution is generally less difficult than are those of seat and nature, and has a more important bearing on the management of the case. The leading symptoms are

abdominal pain, usually sudden and severe, with the more or less rapid sequence of nausea, persistent vomiting, perhaps soon becoming fæcal, distention of the belly, and collapse. The failure of the bowels to move is a less distinctive *early* symptom of the condition than the term obstruction or stoppage of the bowel would seem to imply, and for the following reasons: First, the development of the symptoms may be so rapid in one whose intestinal functions have been previously perfectly performed that non-defecation may be of little or no value as a sign during the all-important early period when efforts to move the bowels should be strictly limited to enemata; or, secondly, the contents of the gut below the obstruction may be evacuated spontaneously or artificially; or, finally, the obstruction may be of such a nature as not completely to occlude the lumen of the tube, thus allowing the passage of contents the nature of which may be suggestive. While, therefore, the failure of the bowels to pass fæces or gas is an important, it can hardly be ranked as one of the leading early symptoms.

We must next consider those affections or conditions other than acute obstruction which have similar or nearly identical symptoms, and which must thus be excluded in reaching a diagnosis.

Identical symptoms are presented by any of the forms of external strangulated hernia. Vomiting, pain and collapse may be sufficiently marked in a first attack of gall-stone impaction to simulate obstruction of the gut. It may be stated here that experience has led me to distrust the relative immunity of young adults from the results of cholelithiasis, as affirmed in most of the books. If I am right, age and sex cannot weigh much in the differentiation. The seat and character of the pain may be suggestive: the occurrence of jaundice within twenty-four hours is almost distinctive. In recurrent attacks the history of the case is of prime importance. Renal colic is a possible, though not probable case of error in diagnosis.

The persistent vomiting, epigastric pain, and collapse of acute irritant poisoning need only to be mentioned, the history and circumstances attendant on the case preventing serious danger of confusion.

Similar symptoms, as Fitz has so well shown, may be due to acute pancreatitis. In this connection a well-known case comes to my mind, a case in which a majority of five to one in consultation decided in favour of laparotomy under the idea that obstruction was probably present. The majority was wrong and Fitz's diagnosis of acute pancreatitis was confirmed. The incidence of this affection, as far as is now known, almost exclusively to middle life; the localization of the pain in the upper abdomen; and the patency of the colon, the transverse

portion of which overlies the pancreas, furnish the means of its differentiation from obstruction.

Peritonitis, general and local, so frequent and of such varied origin, gives rise to more difficulty than all other affections combined. The early symptoms may be practically identical, except for the tenderness of peritonitis, and peritoneal inflammation is a natural outcome of acute obstruction. In the one case constipation is of purely mechanical origin; in the other it is dependent on intestinal paralysis which, in turn, is the result of peritonitis. Though the pathological sequence of events is thus not the same, the exact sequence is not always to be made out at the bedside. The forms of peritonitis of special interest in this connection are those dependent on perforation: of the gall-bladder; of the stomach or duodenum from peptic ulcer; of the appendix.

In the past the symptoms of appendicitis were not infrequently wrongly attributed to obstruction. At present the opposite error is, perhaps, quite as likely to be made; that, namely, of diagnosticating obstruction as appendicitis, so much attention has the latter affection received of late. It is more likely to occur in those rather exceptional cases in which the pain is referred to some part of the abdomen other than the right iliac region. In these the sharp localisation of the maximum tenderness at the first, as is strongly insisted on by McBurney, is a point of value.

Finally, in very rare cases, enteritis may present a picture similar to that of obstruction, and dysentery may simulate one form therof, invagination. A twisted pedicle or rupture of an ovarian tumour, and ectopic gestation are possible causes of error.

Granting, now, that the diagnosis of acute intestinal obstruction has been reached without reasonable doubt, it remains to determine, if possible, the seat and nature thereof.

The nature of the obstruction is, in many cases, difficult or impossible to make out without laparotomy. The following are, perhaps, the leading points which may assist in the solution of the question.

Intussusception is the form which may possess the most distinctive features, and is responsible for at least one-third of all cases of obstruction. No cause is so frequently operative in early life, although it may be found at any age. The pain is usually sudden and severe, and apt to be distinctly paroxysmal owing to the violent peristalsis; nausea and vomiting occur early, the latter seldom becomes fæcal. Tympany is rare as an early symptom. But the characteristic signs are tumour, tenesmus, and the dejections. The former, if abdominal, is usually in the course of the colon on account of the predilection of this affection for the cæcal region, is cylindrical in shape,

may gradually advance as the invaginated portion progresses toward the outlet of the bowel, and is apt to become more distinct during a paroxysm of pain. The comparison of the rectal tumour to the os uteri is an old one. Tenesmus is frequent and may appear on the first day. This and the discharge of blood or bloody mucus with or without liquid fæcal matter may suggest a diagnosis of dysentery.

It should constantly be remembered that invagination does not necessarily completely occlude the lumen of the intestine, as do most other forms of acute obstruction; diarrhœa is, consequently, often present.

It is thus seen that in a fair proportion of cases a positive and early diagnosis is to be reached.

Strangulation by bands or through apertures is identical in its symptoms with external strangulated hernia. No attempt will be made here to differentiate its several forms. It is operative in from one-quarter to one-third of all cases of obstruction. That on which its occurrence depends being so often the result of previous peritonitis, the history of the case may here have special value. While it is most common in young adults it is not rare after forty. Perhaps the influence of age is here only apparent, there being more people alive between twenty and forty than between forty and sixty.

Pain, nausea and vomiting are apt to be even more striking than in invagination; and fæcal vomiting, from the second to the fifth day, is more common. Occlusion of the tube is, of course, absolute, and Treves holds that pain is then more apt to be continuous, but distinctly colicky in partial obstruction. The small intestines being the part involved in nine-tenths of all cases, early tympany is less constant and less marked. Constipation is absolute, neither fæces or flatus escaping; tenderness is evidence of peritonitis; tumour and visible intestinal coils or peristalsis are rare. Collapse is early and marked. The diagnosis, if it can be made, is thus based on pronounced obstructive symptoms, in an adult who presents none of the distinctive signs of intussusception, and may have gone through a previous peritonitis, in males of appendicular, in females, perhaps, of pelvic origin.

Volvulus is most apt to occur between forty and sixty. In the small intestine it is not to be clinically distinguished from internal strangulation. If, as is relatively so common, the sigmoid flexure is involved, the symptoms are, as a rule, less violent and urgent than in strangulation. Constipation is absolute, tympany is more marked; tenesmus is not uncommon. Stricture of the intestine, usually cancerous, is much more apt to give rise to the symptoms of chronic than to those of acute obstruction. Still, the latter occurs so often that it cannot be

left out of consideration. A history of difficult and disordered defecation, perhaps for some time, combined with gradual failure of the general health in a person at or beyond middle life, may here be important. The large intestine, and especially its lower portions, being the favourite seat of intestinal cancer, examination of the rectal and sigmoid regions may yield information of value. A tumour, may, of course, be formed in part of fæcal masses arrested behind the constriction. If dilatation and compensatory muscular hypertrophy have taken place the opportunity is afforded for marked tympany; in no acute form is visible intestinal peristalsis so common. In general, visible coils and peristalsis are more common in chronic cases: and in those persons whose abdominal walls are relaxed from any cause, than in the previously healthy and muscular.

Very rarely tumours originating without the gut compress it suddenly and thus cause obstruction. If the previous existence of the tumour was known, the fact may be of considerable importance. If not, an attempt must be made to determine whether it is fæcal, inflammatory or neoplasmic.

Obstruction by foreign bodies is mainly due to the impaction of gall-stones in the small intestine. A history of previous biliary obstruction may be suggestive.

Fæcal impaction, practically always by the large intestine, rarely gives rise to the cardinal symptom of acute obstruction, and belongs rather under the chronic form. A clear history of previous constipation is the rule. The obstruction may or may not be complete. The pains, vomiting and distention are less urgent, though the latter may be enormous. Collapse is absent or slight, a characteristically fæcal tumour can be felt in the course of the colon or in the rectum in many cases.

To sum up: positive diagnosis is relatively frequent in invagination and stricture; impossible in volvulus; a strong probability may not infrequently be reached in strangulation; a conjectural diagnosis can sometimes be made in obstruction from gall-stones or compression from tumours.

The diagnosis of the seat of the obstruction is rather less difficult than is that of its nature.

It is to be based on:

(1) The determination of the capacity of the colon which, under anæsthesia, may be made to contain six quarts, a pressure of a column of water twenty feet in adults, twelve in children, being probably safe. It should be remembered that the rectum alone may contain one and one-half quarts. If four to six quarts can be introduced, the obstruction is almost certainly at or above the cæcum. The earlier the procedure is resorted to, the less likely is gaseous distention to prevent its full application,

or injury to follow its employment; on the other hand, the more likely is it to be of therapeutic service, as in intussusception.

(2) The situation of the tumour, if such be present, may throw light on the seat of the obstruction.

(3) But little reliance is to be placed on the symptoms. It may, perhaps, be stated: the higher the seat, other things being equal, the less the urine; the higher the seat, other things being equal, the less the tympany. Great excess of indican is not now considered of much value in locating the lesion in the large intestine. When tenderness first appears, its location may have some value as indicating the advent of peritonitis, which is apt to start at or about the lesion.

The presumable nature of the obstruction has some bearing on the seat. Intussusception involves the large intestine in 90 per cent. of the cases; strangulation the small intestine in equal proportion. Gall-stones and foreign bodies obstruct the small gut alone. All other forms are much more common in the large intestine; and all, save perhaps fæcal impaction, are more apt to involve one or the other end of that portion of the canal.

Fitz's statistics show that four-fifths of all acute obstructions are found in the lower abdomen.

First in importance is the diagnosis of the condition that purgatives may be avoided and surgical interference, if necessary, may be resorted to before the patient's chances are imperilled by notable peritonitis or changes in the nutrition of the gut itself.

Next in importance, though not in ease, is the nature. Intussusception alone offers much chance of medical or expectant treatment.

A determination of the seat determines also the point of election for section. Except in the case of stricture of the rectum or sigmoid, this is a matter of comparatively subordinate importance.—*Boston Medical and Surgical Journal*, *August* 11, 1892, *p.* 129.

32.—ON THE PROGNOSIS AND TREATMENT OF CIRRHOTIC ASCITES.

By W. B. Cheadle, M.D., F.R.C.P., Physician to St. Mary's Hospital.

Ascites due to cirrhosis of the liver has been looked upon as very hopeless affection. Its fatality is generally regarded as inevitable. The pessimistic view as to the hopelessness of hepatic ascites is quite consistent with my own experience until the last few years. Up to the year 1884 I had never seen a single case of well marked hepatic ascites of any form, where

the dropsy and emaciation were fully established, and the diagnosis clear, recover. In spite of all treatment—and I am afraid too often in consequence of treatment—they invariably went from bad to worse. I had, indeed, in rare instances, seen the dropsy removed, but never the patient cured. There is no more painful clinical picture of hopeless disease and helpless therapeutics fixed in my memory than these cases of ascites remaining unrelieved in their increasing exhaustion and distress, carried to extreme degree before tapping was resorted to as a last and probably fatal measure of palliation. And yet, although there is an almost universal consensus of authority as to the extreme intractability and fatality of cirrhotic ascites, a considerable number of cases are to be found recorded where recovery is described as taking place after repeated paracentesis and other measures. I have found thirty-six noted in various publications since Dr. Banks's case in 1859. In 1883 Dr. Austin Flint published ten cases of recovery; and, to come down to more recent times, Dr. Bristowe, in a paper read before the Medical Society, related four cases of recovery more or less complete. Of these, three were alcoholic, one syphilitic; and my own personal experience during the last eight years has compelled me to revise my former conclusions as to the intractable character of cirrhotic ascites and its inevitable fatality.

In 1884 there came under my care a case of advanced cirrhotic ascites. The abdomen was enormously distended with fluid (girth, 43¾ in.). The dropsy of the extremities was extreme, and there was great emaciation. All the usual remedies—purgatives, diuretics, mercury—were tried in vain. The patient grew steadily worse, the lungs became engorged, respiration embarrassed, appetite failed, extreme weakness set in, and the last stage appeared to have been reached. Yet this patient, reduced apparently to the most hopeless condition, recovered absolutely and permanently under repeated tappings (6 abdomen, legs 10: nearly 15 gallons), and full doses of iodide of potassium; a year afterwards he was following his work as a wagoner, walking eight to ten miles a day.

The case was syphilitic, no doubt. There was a vague history of it, and I may mention, in confirmation of the diagnosis, that one testicle had been removed by a surgeon some years before for "strumous" disease, and the remaining testicle a few weeks before admission for the same supposed disease by another surgeon.

Since that time 22 other cases of cirrhotic ascites have come under my care, 23 in all. Of these, 4 have absolutely recovered; 2 were seen quite well a year afterwards, and the remaining 2 eight and five years after respectively, still quite well—one two days ago; the liver was still hard and large. In addition

to these, two others recovered perfectly at the time, but were subsequently lost sight of, a third recovered to die of acute bronchitis three weeks after leaving hospital, and a fourth died whilst rapidly advancing towards recovery from intercurrent erysipelas of the head, from a chance infection; altogether 7 to 8 recoveries out of 23. There is, I think, a general consent that these patients get well now far more frequently than formerly.

What, then, are the conditions of disease in which cure is possible? Is there any change in treatment which has wrought this change in result?

With regard to the first point, one fact comes out very distinctly with regard to the morbid changes in the liver itself. It is this: In all the cases which have recovered under my own observation the liver has been large and hard. In no instance has more than temporary improvement taken place when the liver was contracted and small. In the 36 other cases of recovery which I have found recorded, the condition of the liver is stated in 16 instances only. It is put down as large and hard in 13, normal size in 2, "contracted" in 1. I think, therefore, it may be laid down as the first condition essential to cure that the liver must not have passed out of the earlier stage of enlargement into the later stage of contraction. From my own observation it would appear that no degree of emaciation or dropsical accumulation negatives the possibility of recovery if the liver is large, the cirrhosis hypertrophic.

And here I would take exception to the use of this term "hypertrophic cirrhosis" as representing a separate and distinct form, and also to the term atrophic cirrhosis as used to indicate a form entirely distinct from cirrhosis with enlargement, or as synonymous with alcoholic cirrhosis—a common practice. There can, however, be no doubt that many cirrhotic livers enlarged at first became contracted later, and that in alcoholic cirrhosis the liver is not always contracted, but often enlarged for a lengthened period. Enlargement and contraction may be separate stages of the same affection. The distinction has been based upon the fact that in certain cases of cirrhosis with enlargement the growth of fibrous tissue is developed in a diffused manner in the lobule between the rows of cells rather than between the lobules or groups of lobules, and this change has been associated clinically with absence of dropsy, or small amount of it, or late appearance of it, the presence of jaundice, and occasionally the supervention of toxæmic symptoms.

Of the 24 cases under my care, the liver was very large in 12; of these, 7 were judged to be alcoholic; in 3 only was syphilis distinctly traced. In 13 out of the 36 cases of recovery recorded in which the liver was large, 6 were alcoholic, 1 only referred to syphilis. It is to be remembered, however, that there is a close

social connection between alcoholism and syphilis, and in some instances probably both factors are engaged. Making all allowance for this, however, it is clear that there are a large number of cases of hypertrophic cirrhosis in which alcohol is the sole or chief exciting cause. It will be seen that it is not only the syphilitic cases which recover, as I originally believed, but the alcoholic cases also.

In 2 of my cases which recovered, the habit of excessive spirit drinking was fully acknowledged. In the 36 collected cases of recovery, in addition to the 6 I mentioned with enlarged liver which were traced to alcoholism, there are 10 others referred to the same cause in which the state of the liver is not given, or 16 cases of recovery from cirrhotic ascites due to alcohol; and in my case of alcoholic cirrhotic ascites, which died by a chance bronchitis later, the liver was found to be in a condition of ordinary multilobular cirrhosis with about half the glandular structure intact. So that we must conclude, I think, that cases of hepatic ascites—whether of alcoholic or syphilitic origin—are curable in the hypertrophic stage, sometimes permanently or at least for many years.

The next point is the treatment under which patients who formerly died so hopelessly now from time to time get well.

The objects to be sought are obvious: (1) To prevent the increase of fibrosis; (2) to remedy the atrophy and anæmia; (3) to relieve the injurious pressure of the ascitic fluid upon the abdominal and thoracic viscera.

Now, as to the means by which the first two ends are to be attained there will be, for the most part, little difference of opinion, and I may dismiss them briefly. To prevent the increase of fibrosis: Abstention from alcohol and from stimulating foods. In the syphilitic cases the administration of iodide of potassium in addition. To remedy the atrophy and anæmia: Nutritious digestible food with iron, and acid bitter tonics to aid digestion.

As to the third point, however, the means to be adopted for the removal of the fluid from the peritoneal cavity, there is no such consensus of opinion and practice. I have been looking through the textbooks and treatises on medicine, and, with the exception of that by Dr. F. Roberts, who advocates paracentesis, I find a dreary uniformity in the procedure recommended: Purgatives, diuretics; failing these, tonics, or perhaps tonics are put first, to be aided by purgatives and diuretics. When all other means fail, paracentesis. This is the gist of it. It is allowed to be extremely unsatisfactory, but the routine is adhered to, and we cling to the practice sanctioned by precedent and authority, in spite of the fact that in nearly every case of recovery recorded a very different procedure has been adopted.

Purgatives.—Taking first the use of hydragogue purgatives, I say, without hesitation, that it is a most disastrous and fatal practice. It is absolutely ineffectual as a means of reducing the dropsy. It is most effectual in reducing the strength and nutrition of the patient.

With regard to diuretics, it may be said that when the kidneys are sound they are at all events harmless. They are, however, constantly futile. I have never yet succeeded in obtaining any material result in the removal of the fluid in dropsy of any kind by the aid of diuretics, and it is generally allowed that diuretics fail when their aid is most needed.

The only effectual plan of removing ascitic fluid is by paracentesis. In all my cases, and in nearly every other case of successful treatment I can find recorded, repeated paracentesis has been one of the great points of treatment. And I would ask why should we nauseate and exhaust our patients with drugs, and weary ourselves in the vain attempt to remove the fluid by the round-about channel of bowel or kidney, when it can be withdrawn by a simple mechanical process, which in these days of antiseptic surgery is, I believe, absolutely devoid of risk?

I would urge, then, that the fluid which does so much harm should be removed early, before it causes serious pressure on the viscera. The functions of the various organs will be restored, and time gained for the development of the collateral circulation.

It is certain that in many of these cases enough liver tissue remains to carry on life, if only the portal circulation can be sufficiently eased, and the passage of nutriment into the systemic vessels sufficiently established by the development of the collateral channels. This is, however, a work of time. Frequently the patient is carried off before it is effected by the fatal effect of the ascitic pressure, by engorgement of lungs, by hydrothorax, by general failure from embarrassment of organic functions. To gain time is of the essence of cure. This can only be done with promptness and certainty by paracentesis, and with an amount of wear and tear infinitely less than by purging, or drugging with diuretics in the vain attempt to produce diuresis. The operation is, I repeat, perfectly free from risk if properly performed; at any rate, in the case of patients who have not reached the very last stage of exhaustion. Then, no doubt, tapping is sometimes followed by rapid sinking. I presume that this fact, and the not infrequent supervention of peritonitis in former days, led to the belief that after paracentesis the end would soon arrive, and to the counsel of delay. But there is no danger of sinking if the operation is done early; no risk of peritonitis if the trocar is aseptic. I have seen harm result from paracentesis three times; twice in the same week eight years ago, in the early days of antiseptic precautions, from peritonitis

due to use of the same imperfectly purified trocar; once since from collapse in a woman utterly broken down by alcoholic excess. The great number of cases known in which tapping has been repeated without ill effect, even hundreds of times, point to the intrinsic harmlessness of the operation.

The drug which produces the most striking result in conjunction with repeated tapping in certain cases is iodide of potassium. The beneficial effects are probably limited to syphilitic cirrhosis. Bearing in mind, however, the close social association between alcohol and syphilis, and the impossibility of making a positive diagnosis in some instances it is right to give the iodide in all cases when the liver is large and hard. It is right to give the patient the chance. The alcoholic cases as a rule no doubt bear it badly, but if it acts unfavourably it can be omitted before material damage is done.

Mercury has long had a certain repute in the treatment of ascites. I have once seen the fluid entirely disappear in a case of cirrhotic ascites under the continued application of a plaster of mercurial ointment; and Murchison mentions a similar instance. Calomel alone, and with digitalis, blue pill, and squill and digitalis have been credited with great power in the removal of dropsies, but my experience, except in the one instance referred to, has been entirely unfavourable, even in syphilitic cases.—*British Medical Journal, November* 19, 1892, *p.* 1102.

33.—ON IRRIGATION AND ANTISEPSIS OF THE COLON AND RECTUM IN DYSENTERY.

By W. W. Johnston, M.D., Professor of Medicine in the University of Columbia.

In the earlier methods of rectal and colon treatment, water was thrown into the bowel, retained for a certain time and then expelled. Some of the most excellent results are reported from this plan and within recent date. But this cannot but be an imperfect way of cleansing the bowel, although it answers well enough for bringing an antiseptic fluid in contact with the wall of the bowel and with germ-breeding mucus. The objection to it is, the necessity of distending the inflamed coats of the bowel up to a point where injury may be done, if any considerable quantity of water is injected; its advantage is that by this distention the antiseptic fluid washes the inner wall more thoroughly than without it. The method is better fitted, therefore, for subacute cases or those tending to become chronic, than for the acute inflammation with necrosis of the mucous

coat. Properly speaking, this method is not irrigation at all, and the only procedure deserving of this title is that in which there is a *free* and *immediate escape* of water thrown in; and even without argument, it is apparent that in this way only can the bowel be thoroughly emptied and made aseptic.

The mechanical difficulties are very much greater in the efforts to irrigate the colon than in the case of the rectum. To wash the *rectum*, a double, in-and-out, hard-rubber tube, passed into the rectum five to eight inches, through which flows a current of water from a fountain syringe, answers the purpose well. The only objection is the pain which attends the introduction of a hard, inflexible instrument through the irritable anus. Two soft-rubber tubes passed side by side, the larger one for the escape current, are more comfortable for the patient and better in every way; No. 17 English (29 French) is a good size for the smaller tube, the escape tube can be two sizes larger. A large-sized soft catheter will do very well for the entering current. The double-current soft-rubber tubes are not so successful; their soft and thin walls are pressed upon by the sphincter and escape of fluid is obstructed. Then again there is an advantage in having two separate tubes, as either can be pushed up or down as it is desired to wash different parts of the rectal wall; they are, therefore, to be preferred to any double-current tube. The disagreeable sensation of distending the anus passes away in a few moments and the patient gets so much relief from the operation that he ceases to object; preliminary cocaine application may be used if the suffering is great.

All that is needed, then, for this operation are a fountain or Davidson syringe, attached to a small rubber tube or large silk catheter, an escape tube of large size of soft rubber, made long enough by the attachment of a long piece of tubing, so that the fluid escapes into a vessel on the floor. The hand holds and guides the tubes and changes their position from time to time.

The *colon* cannot be distended with water or irrigated with the same facility. That water can be made to pass through the sigmoid flexure there can be no doubt; but the passage of a tube through the flexure into the colon is a difficult task. If this is tried on the cadaver with the abdominal wall removed, one can see how difficult it is; the end of the instrument must describe a complete sharp curve on itself, as if it were about to tie itself into a knot. Even with the hand pressing on the passing instrument and guiding it, it is not easy to accomplish. It is clear from the experiments which I have made, that a partially flexible tube, like the old fashioned stomach tube, should never be used, and that a small tube does not pass as readily as one which more nearly fills the bowel. Distending

the rectum with water as the tube advances, does not favour the passage as much as leaving the bowel empty. The tube finds its way better along the mucus-covered mucous coat. I speak now only of experiments on the cadaver, when the eye is watching the process; the contrary is the general opinion of physicians from efforts on the living patient. But the turning of the instrument on itself in a cavity filled with water, when the end strikes against the wall is very likely to happen and can easily be mistaken for the onward progress of the instrument. In the rectum the finger introduced discovers the error of direction, but higher up it is not possible to do so.

The conclusion of many trials must convince anyone that the attempt to make the instrument enter the descending colon as often fails as succeeds. The difficulties show that all colon irrigation must be done by one tube. I have tried the double-current stomach irrigator and have had constant failure—the closure of the lumen from twists of the tube or from outside pressure prevents the exit of the injected fluid; so that the only way in which this can be accomplished is to force half a pint or one pint of fluid into the colon and then allow it to escape at once through the same tube; in this way the colon and sigmoid can be thoroughly washed out.

What are the indications for the choice of colon or rectal irrigation? In all cases of so-called catarrhal dysentery where the stools are small, contain blood and mucus and in all cases, mild or severe, where the general or local symptoms are relieved by washing the rectum, no attempt need be made to do more than this. For even when the disease extends into the sigmoid flexure and colon, the curative influence is transmitted along the bowel wall upward, as gargling the throat benefits laryngeal inflammation. If the patient continues to have fever, delirium, great restlessness, or other symptoms of general infection, or if stools are large, thin, with a gangrenous odour, containing blood, mucus, and tissue-like shreds, then the attempt should be made to make the tube pass in the sigmoid for higher injection. If the patient is on his left side, his hips raised, a gentle current may pass from a raised fountain syringe into the colon, even if the point of the tube has not passed beyond the first curve of the "flexure." I need not add that there is a danger of perforating an ulcer, even without much force being used, so that the operation should be done with the greatest gentleness. In the great majority of cases of dysentery as we see it, rectal irrigation may, I hope, by continuing experience be proved to be all that we need to gain the desired end.

The *quantity* of water used depends upon the circumstances of each case; as a rule it should pass in and out of the bowel until it runs clear, and both in the case of the colon and rectum the

amount thrown in should be equalled or almost equalled by the amount which escapes; if the egress is not free the operation must be stopped until the trouble is remedied. There need be no limit to the quantity of water.

The *frequency* of irrigation is to be regulated by the number of stools, state of decomposition in the bowel, and other conditions; a good rule *is to try to prevent the patient from having any stools at all*; let his bowel be emptied only *at your command* through the inserted tube; at first once in three hours, later three times daily, as the outflowing fluid contains less blood and has less odour. *Keep the rectum empty and clean*, is the one rule.

At first wash the bowel once in three hours; later three times daily, and so on with diminishing frequency as there are less odour, less blood, and finally less mucus. When mucus is no longer seen in the form of thin flakes the patient may be said to be well; but for a few days one daily irrigation serves a good purpose. Relapses should at once be met by a return to local treatment.

As an *irrigating fluid* water may be used plain, hot or cold, or may contain in solution any of the numerous antiseptics. Extreme cold or very hot water may be injected, but both must have a more or less irritating effect, and their action, in the nature of things, is intermittent. If a continued current of cold or hot water could be kept on the inflamed surface, the case would be different. The surgeon would not apply great heat or cold for five minutes to an inflamed ulcer of the skin and then leave the ulcer alone for three or more hours. It may be practicable to keep water flowing in and out of the rectum for many hours, but few patients could bear such continued distention of the sphincter.

Almost every *antiseptic* has received warm recommendation. Fifty-three cases of acute dysentery were treated at the Military Hospital at Oran with a 1 : 5000 bichloride solution. After the first day the stools were fewer in number, and in three or four days the mucus disappeared; tenesmus and pain were soon lessened.

Lemoine treated fifty-four cases of dysentery with solutions of corrosive sublimate, 1 : 5000. Six ounces were injected into the rectum twice daily; later a solution of the strength of 1 : 3000 was injected twice daily. The fluid was not retained longer than ten minutes. Improvement followed immediately, and acute cases were cured in from one to three days. No systemic poisoning followed in any case.

Notwithstanding all this favourable testimony, the dangers of ulceration in the colon being set up by the remedy, and the grave doubts lately raised as to the value of corrosive sublimate as a germicide in just such conditions as exist in dysentery,

deter one from using it at all. Under no circumstances should it be employed without an immediate outlet for the solution.

Tannin destroys bacterial life and renders ptomaines innocuous ; it is recommended by Cantani for typhoid fever, and it may have as good an effect in dysentery for the same reason.

Salicylic acid, thymol, aseptol, sulpho-carbolate of zinc, alum, hydrochloric acid, carbolic acid, boric acid, the sulphites and hyposulphites have all been used and advised, but no sufficient number of cases have been treated by any one of these as to lead to its preference over all other remedies of the same class.

Boric acid and carbolic acid are the only antiseptics I have used frequently ; the results have led me to think that the former, or both together, give all we want, and as I believe that a great part of the benefit comes from the cleansing and complete emptying of the rectum, the least irritating and least dangerous germicide ought to be preferred.—*The American Journal of the Medical Sciences, August*, 1892, *p.* 163.

34.—ON STOMATITIS DUE TO EPITHELIAL PEARLS IN NEW-BORN CHILDREN

By H. J. Garrigues, M.D., New York.

Scarcely had I gone on duty last spring in the Maternity Hospital before we had a little epidemic of sore mouths among the children, which presented peculiar features that awakened our interest and made us examine every child in the wards very attentively.

The first case presented a superficial ulcer, covered with a yellow film and bounded by a red line, occupying nearly the whole soft palate, and extending symmetrically on both sides of the median line.

The history of the case was that on the second day after the child's birth a small, white spot, like a millet seed, was seen in the median line at the junction of the soft and hard palate, which spread symmetrically, until, in the course of three days, it covered the soft palate.

It was evidently some local infection. I had it swabbed with water acidulated with acetic acid and painted with a solution of borax in glycerine—a dram of the former to an ounce of the latter. The sore healed from the periphery to the centre, and when the child was dismissed, on the twenty-sixth day its mouth was clear.

In another case, immediately after birth, a white spot, pea-sized, was noticed at the junction of the right tonsil and palate, which, on account of its position and size, I suppose was only the white or yellowish spot corresponding to the neighbourhood of the hamular process of the sphenoid, which is likely to become the seat of an ulceration called "Bednar's aphthæ." The mucous membrane is here only half as thick as in the other parts of the mouth. As the hamular process forms a prominence, the back of the tongue is pressed with particular force against it when the child nurses. All of these peculiarities explain why this spot is more vulnerable than most other parts of the mouth.

On the fourth day a white streak was seen extending in the median line from the hard palate to the root of the uvula, and on the following day the original lateral spot became united with this median line, forming a triangular ulceration, taking in the left side of the soft palate and the palatal arches of the same side. It looked entirely like diphtheritic infiltration, but the temperature never rose beyond 99·4°, no glands were swollen, and the child certainly was not seriously ill.

On the seventh day a similar ulcer formed on the right side, corresponding to the original spot on the left. When the child left the hospital on the twenty-third day the mouth was nearly healed, clearing up from the periphery to the centre.

I mention these two cases especially, because, in my opinion, they represent two different types—the first ulceration having originated in an epithelial pearl; the second, in the weak spot covering the hamular process of the sphenoid.

We examined in all fifty-two babies, and soon found that nearly all had one or more white nodules on the palate at their birth. The first twenty-seven of these children had their mouths washed out immediately after birth and after each nursing, with the velvety side of a piece of lint soaked in a saturated solution of boric acid. Of these, twelve had a more or less sore mouth, the ulceration always beginning at the epithelial pearls, with the exception of the one case of Bednar's aphthæ. In the last twenty-five cases we desisted from all washing out, so that nothing but the mother's nipple and her milk entered the mouth; and of these babies not a single one got a sore mouth.

The pearls were found in all but three of the fifty-two, and to these I may add five cases of my private practice, four of which had them, which makes a total of fifty-seven cases; fifty-three of which, or ninety-three per cent., had congenital epithelial pearls.

These epithelial pearls are small, white, globular tumours, varying in size from that of a pin-head to that of a millet-seed, situated in the raphe of the palate, preferably at the juncture of the hard and the soft palate. Sometimes there is only one; in other cases from two to five. The outer surface is almost

cartilaginous, while the interior is filled with a softer mass. They are embedded in the mucous membrane of the mouth, the larger reaching from the epithelium, in which they may even produce a depression, to the periosteum. Most have a covering of condensed subepithelial connective-tissue, which merges into the surrounding tissue without any distinct line of demarcation. Sometimes, instead of the round prominence, we find a white line extending as much as half an inch in the direction of the raphe.

Microscopic examination shows that the whole mass is composed of epithelial cells like those of the mucous membrane of the mouth. The outer layers are the youngest, as appears from their polyhedral form and the presence of a nucleus; while those placed near the centre are flat and have lost their nuclei, just as the case is with the superficial epidermal cells compared with those of the rete Malpighii.

Similar formations are sometimes found on the free edge of the alveolar process, especially near the posterior extremity.

According to Epstein, these pearls are due to a kind of invagination of the epithelium, and the reason why they are found in just that particular place is that the palate is formed by two lateral projections, which gradually unite in the median line from the front backward.

As to their appearance on the alveolar process, Epstein refers this to a similar inclusion of epithelium taking place when the walls of the dental furrow grow together over the germs of the future teeth. He has, therefore, given them the name of *epithelial pearls.*

In our cases the pearls, if they did not give rise to stomatitis, had disappeared already within a week or two. Several nodules were seen to melt together, and then to clear up and gradually disappear. By following them day after day, we have also been able to see that new ones may appear after the birth of the child.

As to diagnosis, they are easily distinguished by their definite locality and their regular, round globular shape. Bednar's ulcer always develops laterally, and usually bilaterally on the place corresponding to the hamular process of the sphenoid. Sprue forms small, irregular, less elevated white spots, which are never congenital and are found in any part of the buccal membrane, without any symmetrical distribution.

In regard to treatment, we must remember that the epithelial pearls being physiologic formations, destined to a spontaneous disappearance, do not call for any treatment, and that all we have to do is not to injure them.

If stomatitis has developed it should be treated as similar affections usually are. Our cases were swabbed with hydrogen dioxide, one part diluted with one or two parts of water;

potassium chlorate, one part to thirty-two or forty-eight parts of water; saturated solution of boric acid; and, what proved best of all, water acidulated with a few drops of acetic acid, followed by painting with one part of borax dissolved in eight parts of glycerine.—*Medical News, October* 1, 1892, *p.* 373.

35.—A CASE OF DYSENTERY WITH AMŒBA COLI IN THE STOOLS.

By John Harold, L.R.C.P. (Lond.), Medical Registrar, Charing Cross Hospital.

The subject of amœbic dysentery has of late been much discussed, and has received a fresh stimulus from the prolonged and comprehensive investigations carried out by Drs. Councilman and Lafleur, of Baltimore. The following case, so far as I am aware, is the first of its kind noted in England in which the amœba coli was detected in the stools.

A. H., aged 27, formerly a soldier, was admitted to Charing Cross Hospital, under the care of Dr. Green, on February 6th, 1892, suffering from chronic dysentery. His past history may be thus briefly summarised. In August, 1886, being then in India, he suffered from ague; two months later, for the first time, he passed bloody and slimy motions. He was but little benefited by treatment. He was stationed from June, 1888, to June, 1889, in Burmah, where the quality of the drinking water was highly unsatisfactory. Here he had an exacerbation of his trouble, but improved under treatment at the military hospital, so that he was able to resume military duty and serve with the Black Mountain Expedition, but he had frequent relapses, chiefly induced by his alcoholic bouts. He was invalided home in September, 1890, since which time his dysenteric trouble has varied in intensity according as he dieted himself and abstained from alcohol.

On coming under observation he complained of tenderness over the liver, which was enlarged, its surface being smooth and regular. The abdomen was sensitive to pressure, especially along the course of the colon. The spleen could not be felt; the thoracic organs were healthy; the tongue was quite clean and shining, typically a "tropical tongue;" the urine, which was repeatedly tested, was always found acid in reaction, of specific gravity from 1010 to 1015, and never contained albumen, sugar, or albumoses, nor did it present any special microscopical characters. The blood was carefully examined, and showed a slight deficiency in the number of red blood discs, and a corres-

pounding decrease of hæmoglobin. The motions were generally preceded by colicky pains, and were very variable in character, frequency, and quantity. They were usually mucoid, very loose, with a varying amount of fæculence, and contained blood, the quantity of which might be large, or merely a streak. At times they looked like mucoid exudation tinged with blood, or slimy, with a sickly odour, or else they presented the appearance and consistence of thin gruel, with here and there a few scattered masses of gelatinoid exudation ; they were alkaline in reaction.

The motions were submitted to microscopical examination in the following manner : A little of the motion was taken from the warm bed-pan into which it had been passed and was placed on a warm glass slide placed on a "warm stage ;" it was then examined with a $\frac{1}{4}$-inch objective. After a careful search amœbæ coli were detected, generally in the gelatinous masses already referred to. They varied in number and somewhat in size—usually being about four or five times the diameter of a blood corpuscle, and exhibited their characteristic movements in all degrees of activity. Their outline was faint and indistinct. At times there was a well-marked progressive movement, but there might only be a simple thrusting forth and retraction of blunt pseudopodia. When it appeared more or less circular in outline, by carefully observing a focussed amœba, its stages of quiescence, pseudopodial protrusion, or rapid change of position or of shape could easily be noted, as also the division of the amœba into ectosarc and endosarc, the pseudopodia being at their first protrusion an entirely homogeneous ectosarc, and remaining so until what looked like a sudden rupture of the boundary line of the granular endosarc allowed this to pour into it, and thus effect a change of position. In order to recognise the amœba, it is most important that it should be actively moving, and therefore the temperature of the warm stage must be attended to. Cold has a paralysing effect on the amœbæ, and when passive they are readily overlooked. The activity of the amœbæ is readily made out by watching the varied substances taken up by its protoplasm—granular matter, red blood corpuscles, organisms, &c.

As a human parasite the amœba coli was originally detected by Lambl, but the first satisfactory investigations concerning the amœba were carried out by Lösch. According to Kartulis, of Alexandria, who in 1883 recorded the results of his examination of 150 bodies of persons who died of dysentery in Egypt, the amœba coli is present in all cases of true dysentery, as also in dysenteric abscess of the liver ; and so far his results have been confirmed in America, Greece, and Russia. In this connection I have the permission of Dr. Patrick Manson to state

that he has detected this parasite in the stools of two patients suffering from dysentery acquired in India, but that he has failed to find it in the pus of three cases of liver abscess in which he made careful search.

I desire to express my best thanks to Dr. Green for kindly permitting me to publish this case.—*British Medical Journal, December* 31, 1892, *p.* 1429.

DISEASES OF THE URINARY ORGANS.

36.—THE TREATMENT OF DIABETES BY PANCREATIC EXTRACTS.

By Neville Wood, M.R.C.P., Clinical Assistant, Victoria Hospital for Children.

This plan, proposed in the *British Medical Journal* of January 7th, occurred to me early last year as worthy of a trial from certain theoretical considerations. I append a brief summary of two cases, in which the method was employed at my suggestion.

Case 1.—This case at the Chelsea Infirmary was kindly placed under the treatment by Mr. Moore. It was of the so-called pancreatic type. A boy, aged 13, whose father had recently died of diabetes, had suffered from symptoms of diabetes before beginning this treatment for six months. From January 1st, 1892, he was placed on diabetic diet, and was given first codeine, from which he received no benefit, and then morphine, under which he improved. The zymin treatment, with diet as before, was begun May 18th. His general condition was bad, appetite not ravenous, thirst great, weight 5 st. $10\frac{3}{4}$ lbs., quantity of urine in twenty-four hours about 90 oz., sp. gr. 1036, sugar estimated at 6·5 grains per ounce. Zymin was given in increasing doses, with the subsequent addition of sodium bicarbonate, and finally pancreatin pills, coated with keratin, were substituted. A daily record of the amount and specific gravity of the urine was kept, and quantitative estimations of sugar were made with Fehling's solution. The treatment was continued till August 21st, when he left the infirmary. Unfortunately, owing to deception on the part of the patient, and dietic indiscretions, which caused diarrhœa on more than one occasion, many of the observations are valueless, and, with the amount of comment necessary, would be out of place in this summary. What is certain is that his general condition vastly improved, his weight increased $7\frac{1}{4}$ oz., and thirst diminished. During the first ten days of treatment

the amount of urine in twenty-four hours averaged 78 oz., and for the last ten days before leaving it averaged 35 oz., while the specific gravity for the same periods averaged 1036 and 1027 respectively. The first reliable quantitative estimation of sugar made May 20th, gave 6·5 grains to the ounce, the last, made at the end of June, 4·5. The boy was re-admitted November 5th, and is still in the infirmary. He is improving under opium, but has not reached the standard of last summer under the pancreatic treatment.

No definite deduction can be made from this case owing to the facts already mentioned, that he was improving at the time zymin was commenced, and the intractability of the patient, while the summer weather and the continuance of restricted diet were in his favour. Its value is also less because press of work prevented me from making a sufficient number of quantitative estimations towards the close of the case. Nevertheless, the improvement in general condition, and in some of the cardinal symptoms of the disease, while he was taking pancreatic preparations, compared with the periods under opium and the alkaloids, is perhaps worthy of record.

Case 2.—The observation of this case at St. George's Hospital was kindly permitted me by Dr. Cavafy. A woman, aged 24, who gave no family history of diabetes, had suffered from symptoms for about four months before beginning pancreatic treatment. Previously to this diabetic diet and codeine were given. Pancreatic treatment was commenced June 10th, 1892, and continued till she left the hospital on July 19th. The diet was not changed, and zymin, &c., was used as in the previous case. At the outset the general condition was that of debility, the amount of urine varied between 2,500 and 4,000 c.c., specific gravity about 1034, and the percentage of sugar 7. The general condition of the woman improved, and she gained 3 lbs. in weight, but she complained of increased thirst. The amount of urine remained about stationary, and while the specific gravity ranged rather lower, the percentage of sugar increased to 10. She went to the Convalescent Hospital at Wimbledon, and left there for her home September 21st, still further improved in her general condition. On September 26th she was readmitted at St. George's, rapidly fell into coma, and died on the 27th. The necropsy showed no notable lesion, and the pancreas is described as "not abnormal, soft like the rest of the body."

In this case, of the cardinal symptoms, diuresis was unchecked, while thirst and the excretion of sugar increased. The increase of weight is possibly attributable to the better assimilation of her food, perhaps of the freely supplied hydro-carbon element. The fall in specific gravity may perhaps be explained on a somewhat similar hypothesis.

From the observation of these two cases I have little hope that diabetes can be influenced by pancreatic preparations in the same way that myxœdema is by thyroid juice. A subsequent perusal of the interesting monograph on Pancreatic Diabetes by Dr. Thiroloix has inclined me to agree with that author that, while in some cases pancreatic lesion is a probable factor, it is not the chief one, and we must look for the essential pathology in some part of the nervous system, perhaps in the great sympathetic ganglia of the abdomen.—*British Medical Journal*, *January* 14, 1893, *p.* 64.

37.—THE TREATMENT OF DIABETES MELLITUS BY MEANS OF PANCREATIC JUICE.

By Hector W. G. Mackenzie, M.D., F.R.C.P., Assistant Physician to the Royal Free Hospital.

In the *British Medical Journal* for January 7th, Dr. Mansell-Jones suggests that as the juice of the thyroid gland appears to be almost a specific in myxœdema, pancreatic juice administered before or after meals should be given a fair trial in diabetes, as this disease, he adds, in most cases, appears to be due to disease or disordered function of the pancreas.

Neither pathology nor physiology, however, lend much encouragement to the hope that diabetes mellitus will prove tractable in such a simple way. In the first place, the pathogenesis of this disease is much more complex than that of myxœdema, and disease of the pancreas accounts for probably only a fraction of the cases of this malady. In the second place, even if it were a fact that in most cases diabetes was due to disease or disorder of the pancreas, the analogy of this doubly active gland, both excreting and secreting, with the ductless thyroid gland is not a very close one. There is some reason, however, on theoretical grounds, for the belief that pancreatic juice might have some beneficial effect even in non-pancreatic diabetes.

The recent researches into the pathology of the pancreatic-form of diabetes mellitus, of which a most interesting account was given by Dr. Vaughan Harley in the *British Medical Journal* for August 27th, 1892, make it very probable that, in addition to the well-known tryptic, diastatic, fat-splitting, and milk-curdling ferments, a glycolytic ferment is also produced by the pancreas. Assuming the existence in the normal pancreas of this latter ferment, I thought it possible that the administration of a pancreatic extract by the mouth might have some beneficial action in diabetes mellitus by assisting to destroy the

sugar in the blood. Acting on this idea, therefore, I anticipated Dr. Mansell-Jones's suggestion, and for some time past have been treating in a tentative way two pronounced cases of diabetes mellitus under my care at the Royal Free Hospital, by the administration of liquor pancreaticus in half-ounce doses given three times a day immediately after food. It is the generally received opinion that, when given in this way, the liquor has no appreciable digestive power, so that we may put the latter effect on one side. No other medicine was given after this treatment was started, and in every respect the patients remained under the same conditions as before.

In both cases the patients have assured me they have experienced benefit from the treatment. I should not have attached so much importance to their statements had it not been that, without any suggestion on my part or collusion on the part of the patients, who attended on different days, there was a remarkable agreement in the accounts they gave of this beneficial effect. They both said they had lost to a great extent their feeling of lassitude and langour, and felt stronger in every way. Their thirst, moreover, had considerably lessened, and they had passed a smaller quantity of urine. These beneficial effects, moreover, have continued. The specific gravity of the urine and the relative amount of sugar have, on the other hand, not been affected.

In a disease like diabetes we must be thankful for even small mercies. For myself I would rather find an improvement in the general condition of the patient, increased strength, diminished thirst, and diminished quantity of urine as a result of treatment than a mere diminution of the amount of sugar in the urine without such improvement. I should have preferred, of course, to have found both results. It is evident that liquor pancreaticus is no specific, but the effects in these cases are encouraging enough to induce me to make further trial of it, and it is possible that in cases of true pancreatic diabetes the benefit might be greater.—*British Medical Journal*, *January* 14, 1893, *p.* 63.

38.—THE SYMPTOMS OF MOVABLE KIDNEYS.

By George M. Edebohls, M.D., Gynecologist to St. Francis Hospital, New York.

The symptoms of the earlier and of the later stages of movable kidney differ considerably from each other, those of the earlier stages being by far the more distressing. The suffering, according to my observations, seems to be greater with a kidney

movable from four to ten centimetres; after the latter limit of mobility has been exceeded the symptoms generally abate in intensity and some of them disappear altogether. Quite enough morbid manifestations, however, remain to make the patient more or less a chronic invalid. It is but just to state, however, that this observation of the greater severity of the symptoms in the earlier stages of movable kidney, as compared with the later, does not harmonise with the experience of Lindner and others, who claim that the greater the degree of mobility the more severe and numerous the symptoms.

I will first describe what I consider to be the most prominent and characteristic combination of symptoms, as I have found it, in *uncomplicated* cases of movable right kidney, in which the mobility ranges from ten centimetres downward; enumerating subsequently the other symptoms more or less frequently observed. The morbid phenomena due to a movable right kidney in its earlier stages are; digestive disturbances, chronic in character; general nervousness; epigastric pain, usually located somewhat to the left of the median line, at or near the free border of the left costal cartilages; cardiac palpitation; inability to feel comfortable or to sleep when lying on the left side. These symptoms, or as many of them as may be present in the particular case, are all more or less constant and chronic in character. When disease of the genital apparatus is associated with movable right kidney, the symptoms immediately become more manifold, and it requires close clinical study to differentiate between the manifestations belonging to the renal and the genital abnormality, especially as a movable kidney exceptionally produces symptoms such as dysmenorrhœa and atypical uterine hemorrhages which generally point to lesions of the genital tract. I will, therefore, dwell somewhat upon the symptoms above enumerated as usually accompanying movable kidney, before enumerating the other morbid manifestations more or less frequently observed,

The digestive symptoms usually observed are, in their order of frequency: anorexia; gaseous eructations; epigastric pain and distress, most severe from half an hour to three hours after meals; constipation; occasional vomiting; foul breath. Quite a number of patients suffering from movable kidney have been treated for years by the ablest practitioners for gastro-intestinal or intestinal catarrh before coming under my observation, and it is one of the most gratifying experiences to see how rapidly and completely these symptoms usually vanish after fixation of the movable kidney by a bandage or by nephrorrhaphy.

General nervousness, of greater or less degree, but always decided, is the next most frequent concomitant of movable kidney. There is nothing peculiar about this nervousness to

distinguish it from that due to other causes. It disappears to a marked extent, though not as rapidly or completely as the digestive symptoms, after fixation of the kidney.

The epigastric pain associated with movable kidney is quite constant in its location, being generally referred to a point some five to six centimetres to the *left* of the median line, at or near the free border of the left costal cartilages. The nature and source of this pain are not quite clear. It is not markedly increased by pressure, and in this respect differs from an ordinary intercostal neuralgia. It appears to be independent of the digestive processes, occurring at any time, irrespective of the fulness or otherwise of the stomach. Landau calls it a cardialgia, and, for reasons to be explained later, I am of the opinion that this term is probably correct, albeit the pain is somewhat lower than that of cardialgia from other causes. This pain also disappears promptly after the malposition of the kidney is rectified.

Cardiac palpitation is one of the most annoying and persistent symptoms. In some patients it is almost constant, and occasionally they become so habituated to it that they are unaware that their heart is beating rapidly, although the examiner may find the pulse 120 or more. This symptom like the general nervousness, yields more slowly than the other symptoms after fixation of the kidney.

The last of the principal symptoms is inability to rest with comfort or to go to sleep lying on the left side. That this symptom is not by any means imaginary is attested by the frequency with which patients complain of it before they are informed that they have a movable kidney, and by its prompt and complete disappearance after fixation of the kidney.

Among the other symptoms which, compared with the above, occur with comparative rarity in uncomplicated cases of movable kidney, I will merely mention the following: Vertigo; a dull backache; painful menstruation; increase of the menstrual flow; pain in region of displaced kidney; mild urinary symptoms, such as intermittent hydronephrosis, moderate polyuria, slight frequency of micturition; icterus; anæmia due to interference with the digestive functions. It is unnecessary to dilate upon these symptoms; they are quite secondary in importance to the five symptoms above described.

It is quite curious and interesting to observe the influence of menstruation and pregnancy upon the symptoms of movable kidney, these being always intensified during menstruation and during the early months of pregnancy, while they completely disappear during the latter half of utero-gestation. The explanation is probably this: During menstruation and the early months of pregnancy the increased collateral flow of blood

to the abdominal organs produces hyperæmia and increased weight of the displaced kidney, with intensification of the symptoms. During the latter half of pregnancy the uterine tumour pushes the kidney upward and supports it in its proper place in a better manner than can be done by any abdominal supporter. It has been an oft-repeated experience with me to have patients state that the only times at which they have felt well during many years past, ever since the beginning of their illness, was during the latter half of their pregnancies, whatever the number of the latter may have been. I have also noted in one case the appearance of symptoms of movable kidney immediately following the removal of a large ovarian cystoma. The cyst had, until removed, sustained the movable kidneys in their place, and thus kept the symptoms in abeyance.—*The American Journal of the Medical Sciences, March*, 1893, *p.* 251.

39.—ON THE ALBUMINURIA OF URIC ACID AND OF OXALURIA

By J. M. Da Costa, M.D., LL.D., of Philadelphia.

[Dr. Da Costa's paper contains the narratives of seven cases illustrating the occurrence of albuminuria in association with casts and excess of uric acid and oxaluria, and comments upon them as follows:]

It will conduce to accuracy if the most striking features of the cases be fully examined. First, of the dyspeptic symptoms. These are rarely absent, though sometimes they are very slight. The signs of intestinal indigestion with flatulency and stools of changed colour are more common than the evidences of gastric disorder. Lack of appetite or capricious appetite is, however, not unusually complained of, as well as a feeling of fulness after taking food. The circulation is prone to be irregular, sometimes rapid, sometimes slow. The pulse is often weak and faltering, or intermittent. Rigidity of arteries, or even increased tension, which is said to belong to the uric acid diathesis as well as to the contracted kidney, I have very rarely noted. The hypertrophies and other cardiac lesions of Bright's disease are conspicuously absent. The same may be said of dropsy and of the eye lesions. Of neither of these have I observed a single instance. A symptom worthy of note is the slight rise of temperature, particularly in the afternoon; and this teaches us to think of what the kidneys are excreting when we try to explain those slight but long-continued elevations of temperature, seemingly causeless, that we sometimes meet with. The

prominence of the nervous symptoms is always very evident. Listlessness, fatigue on the least bodily or mental exertion, forgetfulness, headache, melancholy, sleeplessness, giddiness, may be severally, or may be all, encountered.

The characters of the urine are very significant. There is first the high specific gravity in a urine that is about the normal amount or a little scantier than normal. The specific gravity generally ranges between 1022 and 1028, but I have known it persistent at 1036. The urine, on standing, often deposits urates, sometimes even uric acid, very often mucus. In the deposit, in place of urates, or alternating with them, we may find with the microscope very many of the crystals of oxalate of calcium. The uric acid does not necessarily manifest itself by the deposits of urates. It is best to determine it chemically. This is done most readily by Haycraft's process. It is not always in excess in cases which have all the other characteristics of the group under discussion; but these are generally the oxalurics.

The total solids are increased. The salts in the urine other than the urates are in normal proportion, or vary but little; at times the chlorides are increased, and not diminished, as they are persistently in contracting kidney—a point to which Dr. Wolff, who made for me many of the analyses on which these remarks are founded, called my attention. The phosphates are normal or increased; urea is not deficient; it is of normal amount or increased. The relation of the urea to the uric acid is various. If we take the standard which Haig has established for uric acid, as 1 of the acid to 33 of urea, this proportion may be found to be unaltered, or the uric acid even relatively increased. In the cases with oxalates, the excretion of urea is usually much augmented.

The amount of albumin is generally small, but it varies much with the time of day. I found it mostly in the morning urine, or in the urine after breakfast; and with the ordinary tests it is at times absent, especially in the evening urine. But here, as in other cases of so-called intermittent albuminuria, there is this fallacy: The albumin is not really absent, but only greatly diminished; for it may often still be detected by the finer tests, such as by slightly acidulating the urine with acetic acid and then using picric acid, or by Tanret's test, or by the metaphosphoric acid test. It is not unusual for the albumin to be accidentally discovered, either by examination for life insurance or by chemists testing their own urine for comparison.

Casts are scanty or altogether absent. In character they are hyaline, or epithelial, rarely markedly granular, never fatty. In a few instances fatty cells have been reported as occasionally existing. Casts and albumin mostly go together. Yet I watched a case for ten years in which for a long period hyaline and

epithelial casts were very often found in the urine of a gentleman suffering much from oxaluria, without any of the tests by heat or by nitric acid finding a trace of albumin. This case came under my observation before I had learned to employ any of the finer tests for albumin. Complete recovery took place, and ultimately death occurred from an affection of the liver.

When now we come to the question of diagnosis, we find the main difficulty is undoubtedly that there are cases of contracted kidney with most obscure beginnings, cases in which the amount of albumin is extremely small and at first intermittent, and so often absent that, as in one instance that was finally brought to the post-mortem table and found to have contracted kidneys, albumin was only noticed once in eight examinations. But even in such cases we have the low specific gravity of the urine of the contracting kidney to guide us, and we do not observe the crippled organ passing off abundantly urea, urates, or oxalates; indeed, the urea is often much diminished. In advanced cases there is no difficulty in the differentiation. The retinal changes, the heart symptoms, with the low specific gravity of the urine in contracted kidney, are strikingly different. On this I cannot dwell too much. I have yet to see the first instance of the kind of albuminuria to which I am calling attention, in which the specific gravity was persistently low. To high arterial tension we must not attach too much importance as a means of distinction; for it also occurs from uric acid in the blood.

Another form of albuminuria that it may be difficult to distinguish from this albuminuria of mal-assimilation, is the dietetic albuminuria. Now, in point of fact, a number of the reported instances of the latter are really not instances of dietetic albuminuria at all, but belong to the group under discussion, although they are not so recognised. In true dietetic albuminuria the albumin is only found in the urine when certain articles of food are taken, generally in immoderate amounts, such as cheese, eggs, or pastry. This albuminuria, too, has its special periods; it is particularly common after breakfast or a mid-day meal. It only occurs after the ingestion of food, and then very quickly, and, as the cases of Grainger Stewart prove, it is worse after mental excitement and exercise, and is unattended by tube-casts. Very significant is it that the albumin is never found in the urine before breakfast, and that the albuminuria lacks the signs of disorder of the nervous system; significant, too, is the high specific gravity of the urine with the attending persistency of urates or oxalates.

The albuminuria of severe exercise, with which we have become familiar through the observations of Grainger Stewart on football players and on soldiers, and through the critical

analysis of Senator, is discriminated from the albuminuria of perverted nutrition we are endeavouring to elucidate by its occurring only after strenuous exertion, and by the absence of all other symptoms as regards the digestive state and the nervous system. Undoubtedly, violent exercise will also in the albuminuria under discussion increase the amount of albumin temporarily. But it does not do so in a distinctive or peculiarly striking manner; and, the strain over, the abnormal ingredient shows itself in its usual way.

One more point let me mention in the diagnosis of the albuminuria of uric acid and of oxaluria. We must be careful, when we obtain reactions showing but traces of albumin, to be sure that it is really albumin and not mucin we are encountering; for the amount of mucus in the heavily loaded urine is often very great. With reference to the kind of albumin that is discharged, it is, I believe, serum albumin. But whether it may not be mixed with globulin, or this preponderate, is a matter for future chemical research, as well as in how far peptones also occur and become a source of error.

The form of albuminuria under consideration may be met with at any age. It is rare among children or old persons. It is common in growing boys. It affects the sexes in an extraordinary disproportion. Bright's disease, as is well known, is much more usual in men than in women. But in the albuminuria and the Bright's disease of uric acid or of oxaluria the difference is still more striking. In the many instances I have met with there is but one woman, now a young married woman, who had had the disorder for some years and was cured by going to Carlsbad. Even her case was not entirely free from uncertainty, as there had been a severe attack of scarlet fever a few years before the albuminuria was discovered. Still, irrespective of this case, I cannot doubt that the disease may occur in women; for some of the reported cases of intermittent albuminuria in women, as, for instance, the cases spoken of by Dubreuilh, admit best of this interpretation.

I have just mentioned the frequent occurrence of the disorder in boys. Indeed, since I have been studying the subject, I have become convinced that the albuminuria of adolescence, the form so common at or for some years after the age of puberty, is in the majority of instances the albuminuria of uric acid and of oxaluria.

The prognosis is favourable, though the cases may be of long duration, lasting several years, with occasional reappearance of the albumin in the urine. When recovery takes place, which I think is almost invariable under proper treatment, and albumin and casts have long ceased, it is not unusual for small cells still

to be found with the microscope in the urinary sediment, very likely incompletely formed cells from the tubules of the kidney. Yet I believe that occasionally, from very long continuance of the disorder, fibroid changes may take place and interstitial nephritis result.

In the treatment of the albuminuria of uric acid and of oxaluria we must bear in mind that we are dealing with a special disease, one in which mal-assimilation is the main element, and the kidney affection only a conspicuous expression. The diet is, in the main, that of Bright's disease, though it is stricter as regards the ordinary carbohydrates, and, on the other hand, does not insist so much on milk. Vegetables, especially the green vegetables, and fruits are freely allowed; tea, coffee, and cocoa are permitted, if sweetened but slightly; so are limited amounts of oatmeal, of buckwheat and corn cakes, of rice, of bread and butter; and so are oysters and fish. The white meat of poultry and of game may be moderately taken, but the meats containing much nitrogen, such as mutton and beef, ought, as a rule, to be avoided. I find, however, where considerable exercise is indulged in, particularly by growing boys, that meats may be eaten in restricted amounts without disadvantage.

It is, as in all forms of albuminuria, important to keep the kidneys flushed. The free use of pure water, plain or aërated as fancy dictates, and of the mild diuretic waters, such as Poland water, Saratoga Vichy water, or Vichy water is always of service. Drinking hot water at bedtime acts in some persons very beneficially as a diuretic, and gives a copious flow of urine in the morning. Alcoholic drinks ought, as a rule, to be avoided, or, if used, to be restricted to light wines, not acid. Beer is forbidden.

The use of baths, not too cold, followed by systematic skin friction, is clearly indicated; and of the value of exercise in the open air I have seen many striking examples.

Among medicines, laxatives are very important—phosphate of sodium, cream of tartar, Rochelle salt. An occasional blue pill, or a grain or two of calomel preceding the saline, is also to be recommended. So is a course of muriate of ammonia, or of iron, from time to time—iron, in the shape preferably of the tartrate of iron and potassium. In the cases with oxalates, nitro-muriatic acid remains a standard remedy. The heavy work thrown on the kidneys, the general ill-nutrition which comes from the poorly oxidized elements circulating in the blood, and the lowered nerve force, disturb the heart, and the irregularity it exhibits may have to be met by digitalis or strychnine.—*The American Journal of the Medical Sciences, January* 1893, *p.* 6.

Surgery.

GENERAL SURGERY AND THERAPEUTICS.

40.—ON HIGH AMPUTATION IN SENILE GANGRENE.

By Charles A. Powell, M.D., Surgeon to the Cancer Hospital, New York.

Proposition to resort to early amputation through the thigh in cases of senile gangrene due to arterio-sclerosis was first seriously made by Jonathan Hutchinson, who presented, in 1883, an exceedingly clear and forcible argument before the Medico-Chirurgical Society of London, calling attention to the fact that amputation in obstructive gangrene due to arterio-sclerosis has been largely discountenanced because followed by sloughing of the stump, and urging that this only takes place when the part is removed too near to the disease.

When amputation is done at a low point the condition of the vessels will rarely be found to be such as to admit of repair; gangrene of the stump usually occurs immediately and places the patient's life in much more danger than before operation.

By the "high amputation" which he urges in these cases, he means that in the case of gangrene of the foot the amputation should be made above the knee, and in that of the hand, at or near the shoulder joint

In gangrene due to arterial calcification the interference with the blood-supply is usually greatest in the distal part of the arterial system, and is of such nature as to be steadily on the increase. Hence the hopelessness of improvement and the great danger of advance. Hutchinson adduces a number of cases in which he successfully amputated through the lower third of the thigh for gangrene of the foot, and avers that the procedure is not attended with much danger, even in advanced years and with most extensive calcareous degeneration of the arteries. He has never seen secondary hemorrhage in such cases, nor has he encountered difficulty in securing the vessels at the time of operation.

In this connection I beg to draw attention to a recent and most instructive paper by Heidenhain, who, in September, 1891, published the cases of senile gangrene of the lower extremity which he had seen in the clinic of Küster at the Augusta Hospital in Berlin.

He makes prefatory reference to a paper by Israel, in which the latter arranges the conditions under which spontaneous gangrene occurs under three heads: (1) Imperfect access of normal blood to the affected parts; (2) perfect access of abnormal blood; and (3) imperfect access of abnormal blood. In the first category belong the cases of senile gangrene caused through arterio-sclerosis or obliterating endarteritis; in the second, those of gangrene of the tip of the nose, lips, toes, &c., after acute infectious diseases; while in the third class one must number a great part of the cases of diabetic gangrene, inasmuch as Israel found arterio-sclerosis in no less than 13 out of 20 diabetic patients who consulted him.

Heidenhain includes, then, cases of gangrene in diabetics as well as those in which the urine was free from sugar, citing 25 in all —11 with diabetes and 14 with simple arterio-sclerosis.

Thirty primary amputations were carried out on these 25 patients, three of whom demanded double amputation, and one triple. Besides these 30 primary amputations there were 10 secondary operations, the latter made necessary by gangrene of the stump following a primary amputation. Heidenhain says: "Küster had at first contented himself with the simpler form of interference, or low amputation. The constant occurrence of gangrene in the amputation wound, however, in these cases, regularly compelled further high amputation. So that he (Küster) is led, through his practical experience, to amputate at or above the knee in every case in which the gangrene has extended from the toes to the dorsum or sole of the foot."

Analysing these cases we find that four times, in circumscribed gangrene of a toe, Küster disarticulated, but that in every instance gangrene of the flaps occurred and extended to the foot. Lisfranc's amputation was secondarily carried out on one of these patients; he developed further gangrene and died of sepsis. A second was further amputated at the knee and again higher, the latter operation accomplishing cure. Both of the others were healed only after amputation through the femur. In three cases of primary amputation through Chopart's joint, the gangrene progressed in two and required femoral amputation. Primary amputation through the leg was employed six times: one case died from gangrene of the flaps and sepsis; three were saved by amputation through the thigh; the other two were healed only after gangrene of the edges of the flaps and necrosis of the sawn surface of the bones. Of these thirteen low primary amputations, only two went on to healing, these in leg amputations; two patients died of gangrene of the flaps and sepsis; the remainder, nine, were saved by secondary amputation at or above the knee.

Of the seventeen primary amputations through or above the knee-joint, nine were cured, while eight died of diabetic coma or heart weakness. Of the ten secondary amputations, all recovered. Separating, now, the diabetic from the non-diabetic cases, we find that of the eleven diabetic patients six were cured, while five died; and of the fourteen patients with simple senile gangrene, nine were cured, five dying. The fatal result was due to gangrene of the flaps and sepsis in two cases (one Lisfranc's amputation, one through the leg, both in the early days of antisepsis); in one case a man, aged eighty years, died at the end of nine days, from heart failure; one man, aged seventy-eight years, succumbed to hypostatic pneumonia; and another, aged fifty-two years, died at the end of nine days, with myocarditis, nephritis, and ascites. The list shows that through the high amputation all patients were saved who were not severely afflicted with some general disease.

Careful study of the cases of Hutchinson and Küster, together with the observation of others in which disaster has followed low amputation, serves to convince me of the wisdom of the course indicated, and in so far as we may be guided by present knowledge, I think that we may accept as authentic this statement of Heidenhain's :

"So long as the gangrene be confined to one or two toes, one may wait and abstain from other than general antiseptic treatment, with high position of the limb, allowing the part to be spontaneously thrown off. If the process extends, however, to the dorsum or sole of the foot, one should amputate above the condyles of the femur.

"Amputation below the knee is almost always followed by gangrene of the flaps, and brings the patient in danger. High amputation is indicated, then, when the gangrene progresses, even though the patient be without fever."—*The American Journal of the Medical Sciences, November*, 1892, *p.* 562.

41.—LIGATURE OF THE ILIAC ARTERIES THROUGH THE PERITONEUM.

By W. Mitchell Banks, M.D., F.R.C.S., Surgeon to the Liverpool Royal Infirmary.

In the *British Medical Journal* of Oct. 29th, Mr. Marmaduke Sheild started a very interesting question as to the propriety of ligaturing the iliac arteries through the peritoneum in view of the great safety with which laparotomy can now be performed. It very commonly happens that, unknown to each other, the

same idea occurs to several people, who either partially or completely carry it into practice; but naturally it is not until the details of several cases are collected and collated that a definite conclusion can be arrived at. Mr. Sheild's letter is obviously eliciting the necessary experience, as evidenced by Mr. Clement Lucas's communication, in which he reminds us of his successful case of ligature of the common iliac through the peritoneum for aneurism of the external iliac artery done three years and a half ago. Again, Messrs. Ballance and Edmunds have brought to our recollection three cases of ligature of the internal iliac artery performed by Dennis, of New York, so far back as 1886, and described by Jacobson in his *Operative Surgery*. I am glad to be able to contribute a case to the general tale of experience.

My patient was a farm labourer, aged 62, sent to me in September of this year by Dr. Laing, of Burscough. He was a fairly healthy-looking man of spare frame, who had never had an illness in his life, and whose family history presented nothing remarkable. Some weeks before his admission, while engaged in ditching, he felt pain and a feeling of beating in the right groin. This occurred after midday, but he continued to work for the remainder of the day, getting relief from the pain and beating by occasionally resting. On reaching his home at night he examined his right groin, and found a lump there about the size of a small nut; he also noticed that the lump throbbed. He struggled to keep at his work for about a fortnight, the pain meantime becoming much worse, and the swelling daily increasing in size. At the end of that time he was compelled to give up work, and remained at home resting. Finally, he consulted Dr. Laing, who sent him into the Liverpool Royal Infirmary. A large pulsating tumour as big as the fist occupied the upper part of the right triangle of Scarpa, pushing its way upwards beneath Poupart's ligament. The pulsation was expansile, and there was a distinct bruit. The general signs left no doubt that the tumour was aneurismal.

On September 20th the abdominal cavity was opened by an incision about three inches in length along the right linea semilunaris. The cæcum and small intestines came into view, and were held apart by the hands of an assistant. My finger immediately detected the position of the external iliac artery. The peritoneum over it was raised and slit up for about three-quarters of an inch, and the artery came clearly into view. It was exposed high up in its course, and seemed perfectly healthy. It was tied with catgut, which had been soaked in carbolised oil, with just the exact amount of pressure necessary to stop all pulsation in the aneurism, and no more. No attempt at tight ligaturing with the object of dividing the internal coat was

made. The peritoneal incision was stitched up with a fine bit of catgut, so as to make the artery and ligature once more extraperitoneal. The abdominal wound was closed with fishing gut and dressed with cyanide gauze. The patient's recovery was uninterruptedly successful except for one incident. On the eleventh day after the operation my house-surgeon was hastily summoned to him at 8 a.m., and found that he had suddenly experienced acute pain of a stabbing nature in the precordial region, while his breathing had become painful and difficult. His face was deeply cyanosed, and he was in a state of great collapse. Ether and brandy were administered, and after about twenty minutes he rallied. I imagine that a piece of clot had become detached from the neighbourhood of the ligature, and by its lodgment in the circulatory round had caused the sudden and alarming symptoms mentioned. No investigation of the chest was made for the simple reason that, while it might satisfy curiosity, it could do no real good to the patient, whose best chance of recovery consisted in absolute repose. This was the only drawback. The limb, which had been wrapped up in cotton wadding, remained warm all the time. The temperature never rose a single degree. The pain disappeared and the appetite returned. For some time the aneurism contained fluid at one part, evidently blood serum, but this became absorbed and only a hard swelling remained, steadily contracting in size. He left the infirmary on November 1st, 1892, the forty-second day after the operation, in good general health, and asserting that he could walk as well as ever.

About this aneurism and its cure there is nothing of any special interest, because ligature of the external iliac is always a very successful operation. But the idea of tying an iliac artery through the peritoneum had many times occurred to me, and I thought this a fair and proper case to try it in, for the reason that the aneurism pushed well up beneath Poupart's ligament, and I could not make out with any certainty whether the vessel in its immediate vicinity was healthy or whether it was thinned and dilated. It was obvious that the artery being once exposed through the peritoneum, I could select any point of it for ligature, going as high up as I chose till I came on sound vessel. As it happened, I struck the artery high up, and found it quite healthy. Nothing could have been simpler than the operation; nothing more satisfactory than the cure.

I have tied the external iliac artery twice previously by the ordinary method; once for the cure of aneurism, and once in the hope of retarding the growth of a pulsating tumour of the iliac bone. It is true that it is a sufficiently easy operation, but I think the operation through the peritoneum easier still. As for ligature of the common and internal iliac arteries, in future

these will always be tied through the peritoneum; and the next editions of works on operative surgery will be able to dispense with operose descriptions of the old, dangerous, and difficult methods of reaching them. As Mr. Keetley most justly observes, it is Listerism that has enabled us to reach this pitch. For ligature of the external iliac artery the ordinary operation is so safe and simple, that it will probably be retained in all cases where the aneurism is low down, and where there is a good probability of sound vessel being found immediately above Poupart's ligament. This is reasonable, because a patient may quite well recover from the ordinary operation, even when it has been clumsily done, or when the wound has become septic; but if by evil chance an abdominal wound becomes septic it is quite a different matter. Because laparotomy has succeeded *a merveille*, that is no reason why we should do it recklessly. But where the aneurism is high, and there is a doubt as to the soundness of the artery near it, as in my case, then I think it will be the most judicious thing to ligature the vessel through the peritoneum.

Mr. Footner's case of iliac aneurism, which burst just as he was going to tie the common iliac through the peritoneum, is most interesting. I may be prejudiced, but since catgut ligatures and surgical cleanliness became understood, I have never seen compression of arteries for the cure of aneurism do anything which well-conducted ligature could not do more easily, more quickly, and more safely. Moreover, it has seemed to me that where compression has been tried and failed, subsequent ligature has never had the same fair play as if it had been done at first. I have never yet seen anything but absolute and satisfactory cure after tying the femoral for popliteal aneurism, for instance, until I have come to regard it as one of the safest and easiest operations in all surgery. What better is desired? The only cases where I have seen trouble has been where flexion has been tried and failed; so that I am sure Mr. Footner will agree with me that if he chances on another iliac aneurism he will promptly tie the common iliac through the peritoneum, and not waste any time over aortic compression.

Some fifteen years ago a man came into the infirmary under my care in a dreadful state of pain and distress generally. He had been out of work, and half starved. He had noticed a swelling in the left side of his abdomen for some time. In urgent search of employment he had performed a very long journey on foot, and reached Liverpool just in time to crawl exhausted into hospital. The swelling had increased rapidly, and was daily growing bigger. It was made out to be an aneurism occupying the left iliac region, reaching to the middle line in front and to the umbilicus above. It was impossible to say where it sprang from, but as the man evidently had only

a very short time to live it was necessary to act promptly. I opened the abdomen in the middle line, which was thought rather an adventurous proceeding in those days, with the intention of tying the common iliac or the aorta itself if I got a chance. But it was found impossible to do anything. The aneurism overlapped the left common iliac and the lower portion of the aorta, so that neither of them could be reached. It was a gigantic thing, and had been leaking for some time at the back, tearing up the tissues behind the peritoneum in all directions. I shut the wound up, when I found the case hopeless, and the patient lived for a few days, which was all that we expected him to do under any circumstances. So that what was done did no real harm, and showed us that we had omitted no reasonable chance of cure.—*British Medical Journal*, *November* 26, 1892, *p.* 1163.

DISEASES OF THE NERVOUS SYSTEM.

42.—THE LATER RESULTS OF LAMINECTOMY FOR PARAPLEGIA DUE TO ANGULAR CURVATURE.

By W. Arbuthnot Lane, M.S., Assistant Surgeon to Guy's Hospital.

I propose to relate as briefly as possible the subsequent career of the several cases of compression paraplegia on which I operated, the accounts of which I read before the Clinical Society in October, 1891. Of the eleven cases operated on, two terminated fatally.

Case 1 was an extremely feeble, pallid child, aged 5½ years, who died a few hours after the operation. In this case the bodies of several vertebræ were very extensively diseased, and the amount of blood lost at the time of operation, though very slight in quantity, was yet, when added to the exhaustion resulting from the chloroform, sufficient to kill the child.

This was the only one of the eleven cases in which death or any evil result whatever was consequent upon the operation, and I have no doubt that this death, as also the one following, would not have occurred if at that time we had been familiar with the very great advantages which are derived in such cases from the intravenous injection of a normal saline solution.

Case 2.—The fatal termination in the second case had no causal relationship whatever with the operation, but resulted six whole days after it from a sudden and excessive hemorrhage

from a polypus of the rectum ; this appeared to have been started by the administration of a teaspoonful of compound liquorice powder the night before. Except for this remarkable accident I have no doubt that the child would have recovered completely from her paraplegic symptoms, and that the spinal column would have anchylosed firmly, since it is possible at the time of the operation to remove almost, if not quite, the whole of the diseased portions of bone.

Two other cases were unsuccessful, being only temporarily and partly benefited by operative interference.

Case 3.—W. S., aged 16, had very extensive disease of the dorsal spine, from which he had suffered for a long time. He had had marked paraplegia for six months, and when operated on this was complete. The spinal canal was exposed on three separate occasions within a period of fourteen or fifteen months, and large quantities of tuberculous material and carious bone were removed. On the third occasion large pieces of dead bone, as large as the end of the finger, were taken out of the cavity below the cord. Some benefit was derived from each operation, but the steady and comparatively rapid progress of the disease soon obliterated the advantage gained. He died later from pneumonia, probably complicating influenza, with which his paralysed condition rendered him quite unable to cope successfully.

Case 4.—J. M., a lad, aged 17, gave only a month's history of progressive paraplegia. At the operation the posterior surface of the bodies of three or four dorsal vertebræ were found to be deeply infiltrated by tuberculous material, a quantity of caseous material compressing the cord. He improved after the first operation, but as a relapse of his original symptoms took place, another and a more extensive operation was performed. An abscess was then found in the right side of the chest, and the bodies of the vertebræ were found to be more deeply involved than was suspected at the first exploration. He improved but slightly on this occasion, and soon relapsed. He refused any further active interference, and though the treatment by recumbency was continued he did not improve. I have been unable to find him, as his parents have changed their address, so cannot report as to his present condition.

Case 5.—H. S., a boy, who gave eleven months' history of paraplegia, with more or less incontinence of urine and fæces, was apparently sinking rapidly from pulmonary complications, was operated on in February, 1890. He rapidly lost his paraplegic symptoms and gained in health and strength, his cough also disappearing. He now leads a very active life, having had no recurrence of his paraplegic or spinal symptoms, the tuberculous disease being apparently cured.

Case 6.—H. M., aged 32, gave about three weeks' history of progressive paraplegia, which, while he was treated by recumbency alone, rapidly became almost, if not quite, complete. He was operated on in May, 1890 ; an abscess was opened, and much tuberculous material removed. He gained complete power over his legs, and since the operation has had no return of paraplegic symptoms. The spinal disease is apparently cured. He says that it is only after he has walked a considerable distance that he feels any weakness in his back.

Case 7.—K. B., aged 21, gave more than nine months' history of paraplegia, which had been complete for some considerable time before her admission. She had also a disorganised knee joint. She was extremly feeble physically. On November 5th, 1890, she was operated on, and in a remarkably short space of time all symptoms of paraplegia had disappeared. The knee was excised on November 30th. Five months after the first operation complete paraplegia and cystitis developed very rapidly, and a second operation was performed. On this occasion a considerable quantity of pus and caseous material was evacuated, when she recovered as rapidly as she had done before. The excised knee did well, I heard from Dr. Bernard Scott, whose patient she was, that she died of influenza about eight months after she left the hospital, and that she had had no recurrence of the paraplegic symptoms, nor had she any trouble in her back or knee.

Case 8.—A. T., aged 7, gave six weeks' history of rapidly progressive paraplegia, which became almost complete, sensation being much impaired. He was operated on on February 10th, 1891, a large abscess which compressed the cord anteriorly being opened, cleansed and filled with iodoform. He recovered rapidly and completely, and now leads as active a life as a boy with so marked a deformity can. The angular curve is now apparently firmly anchylosed, and free from disease.

Case 9.—T. J., aged 23, a very delicate man, had paraplegia five years before admission, and recovered after fifteen months' recumbency. Three months before admission paraplegia steadily returned. He was operated on in July, 1891, when a large abscess extending well into the chest, the walls being formed by bone, was exposed and evacuated. It was obvious that this abscess had existed since the first attack of paraplegia. He has now regained control over his legs, and can walk about, though not for very long distances. He is troubled by a slight purulent discharge from an abscess which formed in the loin, the spinal trouble being in the mid dorsal region. This discomfort will, I hope, be removed during the next few months. He has gained in strength, but has a suspicious condition of the apex of one lung.

Case 10.—E. R., aged 8, a feeble, deformed child, rapidly developed paraplegia which appeared three weeks before the operation, and became almost complete. The spinal canal was opened on May 2nd, 1891, when extensive caries and necrosis of the bodies of two or more vertebræ was found. He soon recovered power over his legs, and led as active a life as his deformity permitted. Recently a sinus has formed in the vicinity of the cicatrix, and some pus discharges daily from it. It improves rapidly under treatment, and will, I have no doubt, close shortly. He has had no return of the paraplegic symptoms.

Case 11.—W. H. W., a very delicate deformed boy, 7 years of age, gave five weeks' history of paraplegia, which developed more or less suddenly, and was accompanied by imperfect control over the sphincters. He was operated on in April, 1891, when extensive disease of the bodies of two or three vertebræ was found. He recovered rapidly. He now leads an active life, has had no return of the paraplegic symptoms, and the spinal disease is apparently cured.

In the paper which I read before the Clinical Society I urged very strongly the advisability of operating on these cases as early as possible, if a short period of recumbency was not followed by definite improvement. The subsequent career of these cases confirms me still more strongly in this opinion.

I would point out that operative interference is accompanied by slight risk, for out of the eleven cases operated on, in only one was death consequent in any way upon the operation, and considering that these patients were all greatly enfeebled and often very much deformed, their respiratory functions being very much impaired by the angular curvature, frequently also by paralysis of the abdominal and lower intercostal muscles, and occasionally by bronchitis and cystitis, and by other tuberculous lesions, this mortality can hardly be regarded as other than small.

In the large majority of cases the operation not only relieves the patient permanently of the paraplegic symptoms, but it enables the surgeon to remove the large quantity of caseous material, and such carious and necrosed bone as is not uncommonly present. In all but one of my cases a quantity of caseous material with carious bone existed. The surgeon is enabled to treat the scraped bone by suitable antiseptic reagents. By this means the diseased vertebræ are put in a condition most favourable for their recovery and ankylosis. I do not believe for one moment that the spinal disease would have subsided in some of my cases without operative treatment quite apart from the paraplegia resulting from its presence. The pulmonary and vesical symptoms are rapidly relieved by the

removal of the paralytic condition, and the general health of the patient is correspondingly improved.

The operation in no way interferes with the treatment by recumbency, the latter being a necessary consequence of the former in order that the spine may anchylose firmly. If a case does not recover with operative treatment and recumbency, it obviously will not recover if treated by recumbency alone. I would point out that one of the cases had, after fifteen months' recumbency, been cured of his paraplegia; but I found on operating on him for a relapse of his symptoms five years afterwards, that the relief of the cord from pressure was due to an extension of the abscess forwards into the chest where it acquired a more or less perfect bony wall and remained latent for five years. The tension within the abscess then increased for some reason or another and paraplegia again developed. On this occasion the abscess cavity which was as large as a tangerine orange was readily and effectually cleared of its contents.—*British Medical Journal*, *December* 31, 1892, *p.* 1423.

43.—ON THE SURGICAL TREATMENT OF EPILEPSY.

By Roswell Park, M.D., Professor of Surgery in the University of Buffalo.

No discussion of brain-surgery nowadays, in which the surgical treatment of epilepsy has been disregarded, has been noted in recent surgical literature, and for very obvious reasons. My own experience in this direction has been, I imagine, like that of most other surgeons—*i.e.*, a very mixed and contradictory one. I have had some very brilliant results, and, I think, a few positive cures; and, on the other hand, I have operated without noticing the slightest permanent improvement. In no distinctly epileptic case has any harm been done by the operation, unless there be included in this category two cases of linear craniotomy to be spoken of later. If I may be permitted to state my present opinion concerning the surgical treatment of epilepsy, it would be about as follows; There are certain cases in which prognosis is very favourable; there are others in which the operation must be regarded as an absolute experiment, albeit upon scientific principles; and there are still others which, although accompanied by focal symptoms or other features that ordinarily necessitate operation, we must regard as absolutely hopeless; it is seldom possible to designate to which class a case belongs until the operation is tried. But I think that this statement ought to be

tempered by another, to the effect that surgery alone is rarely, if ever, sufficient, and that it must be accompanied and followed, and, perhaps, even be preceded, by medicinal and dietetic treatment, and that this feature of these cases is too often disregarded. To this second statement should be added, perhaps, a third, to the effect that when operating for pronounced epilepsy we have to combat not only a somatic lesion, but an epileptic habit, so to speak, and that a mere removal of the lesion is not necessarily or always enough to break up the well-formed habit; that it is this which calls for the long-continued post-operative treatment which often causes discouragement and carelessness, and, finally, inattention and absolute disappointment. I firmly believe that if those who operate frequently for epilepsy would steadily and subsequently treat their cases by the other measures alluded to, and keep them up for five years, at the expiration of that time much better results would be reported than we now hear of.

Of purely head or brain cases of this character, I will only call attention to two or three. One was a case operated on in 1884:—A man aged twenty-three, when a boy, fell into the water and struck upon a submerged timber, and was unconscious for two days afterward; he later developed epilepsy, and was afterward in the hospital on Ward's Island and escaped from there when they proposed operation to him. He was picked up in a fit on a Buffalo street, and sent to our hospital. Upon admission he was having at least one fit every day. There was a distinct depression on one side of the median line. The overlying skin was very sensitive. The operation was performed on December 6, 1884; the bone was very thick (2 cm.), with external depression, but none of the internal table could be made out; the external sensitive area was excised. For some days he was violently disturbed; then he showed material improvement, save that on the last day of the year he had several fits, but none during the preceding ten days. Respiration became so embarrassed as to call for artificial aid. A few days later he was sent to the Almshouse, where he had a number of seizures, during one of which a pail of cold water was thrown over him. He quickly recovered, and had no more while there. He left the institution in May, was reported as not having had any fits in three months, but has not since been heard from.

The first case attempted in this country in accordance with the principles of cerebral localisation was in a patient upon whom I operated Nov. 16, 1886:—The patient was a man of forty-seven, who more than a year previously had been thrown and dragged upon the ground. Four hours later he became unconscious, although there was no external violence to the skull. He was unconscious for sixty-eight hours, and gradually recovered. He developed nearly absolute aphasia, his vocabulary

being limited to perhaps a half-dozen words. His right arm was also paralyzed and cold. His epileptic condition developed four months after his injury, and became very pronounced. His lesion was diagnosticated as cystic degeneration of a clot, and its position correctly determined. Upon trephining it was found as expected, only perhaps larger. A cyst was discovered with capacity of 40 c.c. of fluid, in dimensions 10 by 3 c.m. It was dissected out, and the patient made a perfect recovery from the operation. His epileptic and aphasic condition, however, have since then only in small measure improved. This latter condition I can explain by atrophy of the third parietal convolution, due to pressure of the cyst. For the former I can give no more satisfactory explanation than in any such case.

Three or four similar cases in which cysts have been accurately diagnosticated and indicated either by localising symptoms or by external scars, have been operated upon after much the same fashion, with results in every case encouraging, but in no case completely satisfying. It has seemed that in every case the cyst had existed for a time long enough to produce atrophy of the underlying portion of the hemisphere, with permanent loss or disturbance of its proper functions.

In one case operated upon last year I had an experience with hemorrhage which may be of interest and encouragement to others. It was one of those instances of traumatic Jacksonian epilepsy with a scar near the middle line of the scalp. The operation was without incident until the dura was opened, and adhesions found between it and the cortex. These were tough and firm, and in the endeavour to remove the adherent portion of the cortex some unusually large veins or abnormal connections with the longitudinal sinus were severed, and the bleeding became serious and even alarming. I finally succeeded to my perfect satisfaction, however, in checking it by packing with iodoform-gauze, the tampon of which I retained *in situ* by the pressure of the overlying skin flap, which I restored to its place after inserting secondary sutures of silk, which were left long and tied by a bow-knot. Two days later I untied the knots, lifted up the flap, removed the tampon without a particle of hemorrhage, restored the flap to place, utilised the secondary sutures for its retention, and got beautiful union by first intention. This patient went home very much improved, but during the hot weather of the past summer was, I have been informed, injudicious and had some return of his old trouble; the seizures never being of so serious a character as before, and being quite controllable so long as he takes bromides and borax in ordinary doses—a line of treatment which I have urged him to continue indefinitely.

Last spring, at the meeting of the American Surgical Association in Boston, Dr. Beach, of that city, presented a case operated upon for traumatic epilepsy, in which, in order to prevent the re-formation of adhesions between the dura and the other tissues he had inserted a piece of thin gold foil, carefully sterilized, with apparently the best results. Following his example, I have twice operated in the same way, cutting out with a pattern a piece of dentist's foil a little larger than the bone opening, and fitting it in, after closing the dura, between it and the margin of the bony defect, then closing the scalp-wound over it, all without drainage. There has not been the slightest disturbance of any kind, and the progress of these cases, so far as I have been able to judge of them or to hear, has been very encouraging.

This measure (insertion of gold foil) I now intend to introduce and recommend in recent accident cases in which trephining is practised for depressed fractures, &c., for the purpose of preventing adhesions between the scalp and dura.

In another case, in a young lady with Jacksonian epilepsy, in which the aura usually commenced in the arm, and in which there were noticed also what my colleague, Dr. Putnam, has been recently the first to call attention to, namely, sleep-movements in the same arm, I last spring exposed the arm centre, determined its exact location with the faradic coil, and excised the same as accurately as I could to the depth of 1 cm. Perfect primary union took place, but the result has been disappointing, there having been only slight amelioration of the symptoms. In her case, however, we have had to contend with peculiar gastric symptoms, dilatation of the stomach, &c., which seem to have had a marked influence in depriving her of the benefits legitimately to have been expected from such an operation. Moreover, she has a peculiar idiosyncrasy, in that she cannot take bromides in any form without the development of intense bromism, her body showing many scars of ulcers produced in the attempt to bring her under the influence of the drug.—*Medical News, December* 3, 1892, *p.* 620.

44.—ON METASTATIC ABSCESS OF THE BRAIN.

By G. L. Walton, M.D., Physician to the Massachusetts General Hospital.

[Dr. Walton gives the narrative of an important and instructive case of a man 35 years old, in whom a fetid pneumonia was followed by metastatic cerebral abscess, the locality of which was accurately defined during life, and which was evacuated by

trephining, but with a fatal result. Dr. Walton concludes his paper with the following observations upon the subject :]

The literature on the subject of operation for metastatic abscess in the brain is very meagre, this being, as far as I can ascertain, the first recorded case of successful diagnosis and evacuation of this variety of abscess. The operation has, however, been successfully performed in abscesses resulting from trauma, as well as from middle-ear disease, a result which renders operative procedure in metastatic abscess imperative where such a diagnosis has been arrived at. By far the most satisfactory treatise on this subject in its surgical bearing is that of von Bergmann (Archiv. f. klin. Chirurgie, 1887, xxxiv., p. 759), from which I draw largely in the following *résumé*.

Probably a quarter to a half of all cerebral abscesses are due to extension of suppurative process from the skull, more especially resulting from middle-ear disease. Of the remainder, a large portion are due to trauma, leaving only a comparatively small number resulting from either tuberculosis or from metastatic processes. In a certain number of these cases the pus-formation in the brain is a part of a general process, as in pyæmia, there being a similar deposit in the joints, the lungs, the liver and the kidneys. In the latter case the cerebral lesion forms so small a part of the general clinical picture as to render operative procedure hardly worthy of consideration. In the case of tuberculous abscess the promise is hardly greater. As regards the metastatic abscesses, with which we have here immediately to do, these were first demonstrated by Virchow as resulting from gangrene of the lung. Biermer demonstrated similar trouble after bronchiectasis, and Näther (Deutsch. Archiv. f. klin. Med., bd. 34, s. 169) reported cases as following pulmonary abscess, gangrene, impaction, pneumonia, wound of the lung with exudative pleurisy, and empyema. The latter author found these eight cases by autopsy among one hundred cases of pulmonary gangrene, fetid bronchitis and bronchiectasis.

The chief difficulties in the way of operating for metastatic abscesses are, in the first place, the difficulty of diagnosis and localisation ; in the second place, the probability that such abscesses are multiple (von Bergmann).

Näther found in only one of the eight cases above mentioned a solitary abscess. The fact, however, that we may hope to find such a condition in one out of eight cases renders the operation not only justifiable but imperative when we consider the absolutely hopeless prognosis of abscess of the brain when treated expectantly or in any way other than by operative procedure. The hope that an abscess may become encapsulated, and hence become indefinitely latent, or that it may undergo cheesy degeneration and become innocuous, is practically *nil*,

the tendency of abscess of the brain being in all cases either eventually to burst into the ventricle or into the vault, or to set up a diffuse meningitis. Even where the abscess has become encapsulated the tendency, as von Bergmann states, is to eventually break into the ventricle none the less. The futility of the hope that spontaneous evacuation may occur, either through the skull or into the ear, nose or other cavity, has been also dwelt upon by the same author. We have here, then, every reason for resorting to operation when the disease has become recognised and its localisation made evident as being within the reach of the knife. We can offer, of course, very little encouragement in a case of this sort as regards the eventual result. Without operative interference, however, we can offer absolutely no encouragement, the fatal prognosis being practically certain.

As regards the diagnosis of abscess, the most important point is that of etiology. The number of idiopathic abscesses reported have been so greatly narrowed that it may be considered that the authentic cases are reduced almost to nothing, and even in those cases which are apparently idiopathic a more or less remote injury to the skull may be probably traced as the cause, if not one of the other sources already mentioned. Von Bergmann was sufficiently assured upon this point to decline to operate in a case referred to him for operation by a distinguished neurologist, simply upon the ground of lack of etiology, an opinion which proved to be justified by the autopsy, which showed a diffuse inflammation, inaccessible to the knife.

In our case the etiology was evident. It is true that tumour or other disorder might chance to arise at this time and give somewhat similar symptoms. The burden of proof, however, would rest upon any other diagnosis than that of abscess. The diagnosis rests principally between abscess and new growth. In favour of abscess were the sub-normal temperature, the absence of choked disc, which, to be sure, occurs exceptionally in abscess, but far less frequently than in tumour. Certain authors have denied that subnormal temperature is characteristic of abscess, but it seems to me that a sufficient number of cases have been recorded to justify the opinion that this is an extremely characteristic symptom. The presence of chill and marked variations of temperature would have been even more diagnostic. These, however, failed completely in our case, the temperature running a more or less even course varying from subnormal to normal (from 97° to 98·5°), although it was taken every four hours to show variations had they occurred. The factor in diagnosis upon which almost absolute reliance was placed was the etiology, and the result certainly proved the wisdom of being thus guided With regard to the size of the abscess, it could not

be, of course, determined accurately whether a large or small one existed before operation. The chances were, however, in favour of a fairly large one, inasmuch as an abscess of this sort is apt to have grown to considerable dimensions before any localising symptoms are produced, even though it may be directly in or very near the motor region. I remember one case in which the autopsy, after a case of gangrene of the lung, revealed an abscess occupying nearly the whole of the white matter of one hemisphere, in which absolutely no cerebral symptoms have appeared, the patient dying of the pulmonary affection.

Senator (Berl. klin. Woch., 1879, Nos. 4-6) has reported a case as similar to ours as any with which I am familiar. In that case lung trouble had existed for six months previously, with dulness of the right upper lobe and copious expectoration with evening fever. There was a paralysis of the right arm ascending from the fingers to the upper arm ; five days later an epileptiform attack, beginning in the right hand and spreading to the arm, without loss of consciousness ; on the eighth day paresis of the right lower facial branches ; on the ninth day, of the leg, especially in the foot ; on the thirteenth day marked ataxic aphasia ; and on the seventeenth, death. Autopsy revealed several cavities in the lung and numerous peribronchitic foci of inflammation. In the left hemisphere there was an abscess containing fifty grammes of pus, without any marked capsule. This nearly broke through the cortex. The convolutions from the fissure of Rolando forward into the frontal region were flattened and of a greenish discolouration, especially in the posterior part of the third frontal lobe. Von Bergmann in quoting this case states that operation was omitted on account of the rarity of single abscesses of this nature. The autopsy, however, showed that a solitary abscess really existed in this case, although the post-mortem results showed that the operation would have been futile on account of the still-existing pulmonary lesion.—*Boston Medical and Surgical Journal*, *November* 17, 1892, *p.* 475.

45.—ON LAMINECTOMY FOR POTT'S PARAPLEGIA.

By Samuel Lloyd, M.D., New York.

[In an important and exhaustive paper based upon the tabulated results in 75 cases, Dr. Lloyd makes the following observation :]

There can be no doubt that Chipault is theoretically correct when he says that the essential consideration in spinal surgery is first "to remove the diseased bony point, that is, to carry out

the general surgical idea in regard to tuberculosis of bones," and second, "to relieve the cord from compression, whether by a sequestrum, an extra spinal abscess, or more often by tubercular granulations arising from an external pachymeningitis;" but more practical considerations based upon clinical experience must lead to decided limitations in the application of the method.

The age of the patient is an important consideration. In the seventy-five cases forming the basis of this paper, twenty were adults and thirty-nine children. In the other cases the age was not noted. Thirteen of the adults died. One from respiratory troubles due to inhibition of the phrenic nerves by exploratory puncture of the cord at their point of origin. Another, after thirty-seven days of an empyema, due to puncture of the pleura during the resection of the carious rib, before opening the spine; and a third lived eight weeks, although the autopsy revealed the fact that the compression had not been removed. One case having fully recovered from the effects of the operation, died nearly two years later of pulmonary phthisis never having had the slightest return of the spinal symptoms. In one, a recurrence of the disease was noted seven months after the operation, and the autopsy revealed the fact that the spinal symptoms were due to a re-invasion below the site of the former operation which was perfectly healed. One died two and a half months after the operation of tubercular empyema and pneumonia.

In the children, thirty-nine cases, sixteen deaths, one was "apparently dying" when the operation was undertaken and was suffering from broncho-pneumonia, two died three and five weeks after the operation, also with broncho-pneumonia. The first case revealed a very extensive lesion including the bodies of the fourth, fifth, sixth, seventh, eighth and ninth dorsal vertebræ. One died of exhaustion after forty-seven days, and another after two months. In one the progress of the spinal lesion was not arrested and death resulted in three months, while in another the autopsy showed a hopeless degeneration of the cord and a tubercular pleurisy. A fifth case died in collapse twenty-four hours after the operation and the autopsy revealed a purulent peritonitis. In my own case the operation was undertaken too late. I have no doubt had the spinal compression been relieved before the child was completely exhausted, that she might have been cured, the decided benefit resulting from an operation that was expected to be fatal even before its termination was a proof of this fact. One case died of pneumonia one month after the operation, when the spinal symptoms were progressing favourably, while one succumbed to a hemorrhage from a rectal polypus, while improvement in the paralytic symptoms was progressing satisfactorily.

It has already been stated by various authorities that Pott's disease in children is decidedly less serious than in adults, and the same condition is evident in cases that have been subjected to operation.

The region also seems to exercise a considerable influence upon the prognosis.

In fifty-eight of the cases the region involved in the disease is stated. Of these fifty-three were dorsal, giving eighteen recoveries, seven improved, eight not improved and nineteen deaths. There are but five cervical cases, two of which were cured while the other three died. One case involved the cervical and upper dorsal regions and one the dorso-lumbar, and both died. In the lumbar region there is one case cured. These figures bear out the fact already noted in a former paper, that the mortality is higher when the upper regions of the spine are invaded.

The time of the operation after the onset of the disease has varied from a few days to seven years.

These statistics show simply that there is no period better than another for operation, cures having resulted at five months and at seven years, while no improvement has been noted both at six months and at three years. Still this question of when to operate if we operate at all is the most important one we have to answer. It is beyond question that the tendency of paraplegia in Pott's disease, especially in children, is towards recovery, even after the lapse of considerable time and when there has been one or more relapses.

Lauenstein's rule in regard to operating after six weeks if there is paralysis of the bladder and rectum and the formation and spreading of bedsores, has been proven by abundant clinical experience to be inapplicable in these cases, however well it may apply to traumatic lesions of the spine. Myers in a paper read before the Am. Ortho. Asso. has reported that fifty-five per cent. out of a total of 218 cases of paraplegia were known to have completely recovered, and Gibney out of fifty-eight cases reported twenty-nine recoveries, fifty per cent. Taylor and Lovett have reported seventeen recoveries out of nineteen cases, and Sayre, thirty-four out of thirty-eight. Myers showed that the average duration of the paraplegia was, in the cervical region, twelve months, in the upper dorsal nine and one-half, in the lower dorsal six, and in the lumbar region eight months, but cases may recover even after a considerably longer period. These statistics do not show, unfortunately, whether the length of time the paraplegia has existed, has any effect upon the completeness of the recovery. It would be interesting as it is important to determine how long the spinal cord may remain compressed without the establishment of degenerative changes. In the

traumatic cases an entirely different condition obtains, for the interference with the function of the cord has been sudden and severe, and usually accompanied with more or less bruising or concussion. Hence we often find a traumatic myelitis existing after the injury, which serves as an absolute contra-indication to operative interference during its continuance. In Pott's disease on the other hand the compression is gradual, unaccompanied with any sudden jarring of the cord and consequently free from the acute inflammatory disturbances which so often characterise the other class. Still in some cases myelitis occurs and progresses rapidly in Pott's disease, but it is impossible to say whether this is due to the compression or whether it may not be a part of the general inflammatory condition surrounding this portion of the cord. Probably both circumstances exercise a certain amount of influence.

It has been stated that degeneration takes place within six months and yet the conservative indications are that a cure may result after a much longer period. It is also always possible that the cord may become accustomed to a certain amount of compression and resume its functions until an exacerbation of the disease produces an increased compression compelling a fresh adaptation of the cord to its confined space. This may account for some of the cases that relapse while under treatment by conservative methods.

Theoretical considerations must give way, however, before clinical experience, and consequently it seems impossible to definitely settle upon any time when, as a rule operation should be undertaken. This must of necessity vary with the individual case and must be modified by the results obtained from properly adjusted conservative treatment. It is safe to say that no surgeon would interfere in any case in which there were other tubercular lesions of any extent complicating the cord lesion. Macewen has considered marked hectic a contra-indication, but this is a fallacious sign, for the fever may be due to the progress of the vertebral lesion and may be immediately overcome by the operation.

Burrell and Bullard have said that "so long as we have reasonable or even moderate chances of recovery without operation we do not believe it advisable or justifiable, in the present condition of spinal surgery, to perform so serious an operation as the resection of the laminæ of the spinal vertebræ." Kraske says, "It is necessary before operating to have exhausted all other methods of treatment. I would only interfere when a paralysis of the bladder is established: this is the one symptom which is so serious as to justify everything."

It is unnecessary to say that no surgeon would undertake an operation of this magnitude where there was any chance of

recovery by other means ; but there still remains a considerable number of cases that occupy debatable ground, where the chances of recovery without operation are very slight, where continued mechanical treatment yields little or no result, and where at any moment an extension of the lesion may render the patient hopeless if it does not destroy his life. Such cases, in my opinion, had better be operated upon. Then, too, there is another class which shows only progression of the disease in spite of all care and where an arrested degeneration is set up again, threatening the integrity of the cord. These should undoubtedly be operated upon and that operation should be undertaken early. How much regeneration we may hope for in a spinal cord we do not know. Some writers taking other nervous structures as a basis claim that it should be considerable and it is undoubtedly true that in cases of incised wounds, when the cord has been apparently injured, judging from the symptoms, regeneration has sometimes taken place and been more or less complete. But the conditions we have to deal with are not similar to incised wounds, the area of degeneration is greater and the progress of the disease is slow ; there are no cleanly cut edges to come at once into apposition and allow of immediate reunion. It has also been shown in traumatic lesions that the cord does not recover its functions after a crush and so far no success has followed attempts to unite the severed ends.

We are consequently brought to this position. The operation should not be undertaken while there are any good chances of recovery without such interference, but it should not be postponed so long that an ascending or descending myelitis may destroy the patient's chances of recovery, and the first sign of a degeneration of the cord should indicate immediate operation.—*Annals of Surgery, October*, 1892, *p.* 294.

46.—ON THE SURGICAL TREATMENT OF EPILEPSY.

By A. G. Gerster, M.D., Professor of Surgery in the New York Polyclinic ; and

B. Sachs, M.D., Professor of Mental and Nervous Diseases in the New York Polyclinic.

In the following report we record our joint experiences in the surgical treatment of epilepsy. We have attempted, in an unbiased fashion, to study the effects of various surgical procedures upon the course of epilepsy, and in recording all cases that we have operated upon, no matter what the result, we are more apt to give a correct view of how much or how little

surgery can accomplish in this special field than those can give who describe their short-lived successes and do not report the many dismal failures.

The cases operated upon were selected with considerable care. They were either cases of distinctly traumatic origin or in which a strictly localised convulsion pointed to a limited focus of disease. Cases of general epilepsy of non-traumatic origin were not subjected to operation.

The table (pp. 279-281) gives a succinct account of the chief points of interest in ten cases; seven of these may be designated as cases of traumatic epilepsy, one was due to ear disease, one was a case of infantile cerebral hemiplegia with epilepsy, and one was a case of non-traumatic localised epilepsy due to early acute brain disease—a case of infantile cerebral palsy without palsy, but with epilepsy.

Remarks by Dr. Sachs.—The first and most notable result of the operations we have recorded is that we cannot claim a single decided cure. In several of the cases there has been a marked diminution of the attacks immediately after the operation; in some the improvement lasted for a few months; but in every single case the attacks recurred after a lapse of several months or even less. The case which promises best is Case V., in which the epilepsy—characterised, by the way, by interesting auditory and olfactory auræ—was due to ear disease, aud in this case the improvement that has set in has now continued nine months; but a second operation was necessary to bring about this result. The quiet of hospital life after an operation, and the unusual care which patients receive during this time, undoubtedly contribute to the cessation of attacks, and may in some way account for the successes so frequently reported, as was illustrated in Case IX. Not a single attack occurred for six weeks after operation, but as soon as the boy was dismissed from the hospital and allowed to roam about at his own free will, the attacks returned and possibly even with greater force than before.

In the first six cases reported, the operation consisted simply in opening the skull, possibly the dura also, without excision of cortical tissue. In Cases VII. and IX. cortical tissue was removed; but as far as our experience goes excision of cortical tissue or excision of a diseased area is not superior to the older method of simple trephining. In these very cases of traumatic epilepsy it is not always an easy matter to excise the area which is supposed to be the starting-point of the epileptic disease. If the motor area happens to be the part injured, this can of course be attempted; but if, as in two of our cases, the traumatic injury caused a depression over the occipital areas, excision of the cortex, with its probably resulting disturbances of vision, would not be advisable or even fair to the patient.

No.	Name.	Sex and age.	History of case.	Date of operation.	Character of operation.	Occurrences after operation.	General result.
I.	L. C.	M. 6	Said to have had brain fever at age of 10 mos.; at age of 5½ years first right-side convulsion, repeated at interval of one week; right hemiparesis since first attack; athetoid and associated movements.	Dec. 29, 1890	Exposure by chiselling of motor area of right arm, determined by faradisation. Dura tense and adherent; puncture; no cyst found.	Recovery excellent; no convulsions up to Feb. 2, 1891, when boy was discharged from hospital.	Immediate diminution of attacks; after leaving hospital had one mild attack; not heard from since.
II.	W.C H.	M. 20	At age of 12 years was pushed back over pole of a wagon; supposed to have struck back of head (?); unconscious for a few minutes, but worked as usual; one week later general epileptic convulsions; has petit mal, and above all Jacksonian epilepsy involving muscles around right half of mouth. Occasionally eyes are involved. No loss of consciousness with majority of attacks.	Feb. 13, 1891	Exposed centre for representation of angle of mouth according to Horsley; adhesions under the button of bone; small cysts on dura; on puncture a little bloody fluid. Faradisation over dura caused contraction only of r. angle of mouth. Large opening; button not replaced.	Attacks returned after operation and have not been diminished, and eyes are more frequently involved.	No improvement.
III.	M. K.	M. 16	At age of 18 months fell out of window; since that time epileptic attacks at varying intervals; has had tremendous doses of bromides; ill-tempered and stupid; stopped bromides; no attacks for three weeks, then left-sided convulsions becoming general.	Feb. 23, 1891	Large trephine opening over motor area for arm and leg, right side of skull.	Good recovery, but no cessation of attacks.	No mprovement.

No.	Name.	Sex and age.	History of case.	Date of operation.	Character of operation.	Occurrences after operation.	General result.
IV.	E. L. M.	M. 30	Traumatic injury to right side of head; general epileptic attacks.	July 24, 1892	Trephining over occipital depression; adhesions over the depression.	Did very well except that he developed delusions of persecution.	Attacks returned within 2 weeks; alcoholic excesses.
V.	J. D.	M. 8	Traumatism at 7 months; 6 months previous to operation began to develop auditory and olfactory auræ and then general epileptic spells; if ear ceased discharging spells became worse.	1st oper. Aug. 14, 1891	Opening of mastoid and removing two sequestra of bone.	Facial palsy of left side. Sept. 10th first attack; repeated attacks.	Great improvement after second operation; no spells up to date.
				2nd oper. Nov. 17, 1891	Mastoid opened again and silver canula to secure permanent drainage.	Nov. 18th, convulsion of right side, but none since; last report August 15th, 1892.	
VI.	T. C.	M. 26	At age of 11½ years was severely kicked by a man over the right side of occiput; 6 months later epileptic attacks which have continued nocturnally about every 6 weeks since. No hemianopsia. Marked depression in skull; was for 8 weeks without any attack; attacks then returned.	Nov. 20, 1891	Trephining and chiselling over scar; tremendous exostosis almost doubling underlying part of brain.	Nov. 22, short spells; none while in hospital; discharged Dec. 15; has gone out West; has attacks every six weeks, but milder; reports that his memory is better.	Some improvement in severity of attacks eight months after operation.
VII.	H. L.	M. 24	Six years ago fell down; thinks he struck on right side of occiput; one year later first attack, right hand and leg convulsed. At first had attacks six times daily, lately three or four times in two weeks.	Jan. 29, 1892	Motor arm centre on left side exposed; part of dura but no cortical tissue removed.		
				2nd oper. Mar. 8, 1892	Removed arm centre as determined by electrical tests, with slight resulting paresis.	Repeated attacks after both operations.	No improvement worth mentioning.

No.	Name.	Sex and age.	History of case.	Date of operation.	Character of operation.	Occurrences after operation.	General result.
VIII.	C. D.	F. 9	Fell out of bed at six months, striking head against bare floor; at ten months a tedious illness, slow in development; at age of 5 years began to have innumerable convulsions (at least 50 per day). Idiocy. Parents insisting on operation.	Feb. 15, 1892	Large trephine opening over left side of head (motor area).	Attacks not quite so frequent as before.	Slight improvement.
IX.	K. A.	M. 9	At age of 5 years had a "congestive chill" and spasms; no paralysis at the time; two or three years later developed Jacksonian epilepsy beginning in left hand without loss of consciousness; no evidence of palsy; boy feels left hand drawn up in cramp.	April 12, 1892	Excision of hand centre in right hemisphere; removed considerable tissue; hand was paretic for a few days.	Did very well in hospital for six weeks, but as soon as he left hospital and ran about got severe attack with loss of consciousness and involuntary passage of urine.	Some immediate improvement, but no lasting benefit from operation; in later attacks right arm was also involved.
X.	E. S.	M. 12	Two years ago was run over; fell backward, striking curbstone; unconscious for ten days, and had convulsions during this time; one year later convulsions became regular and frequent Scar in left occipital region near median line.	May 27, 1892	Trephining and chiselling over occipital region.	Report not yet made.	

If we seek for some special reason why operative procedure has accomplished so little in these cases, it is to be found in the fact that they came under our notice after the epilepsy had been established for many years. It is now generally conceded that, though a focus of disease is the actual cause of the epilepsy, this epilepsy does not manifest itself, as a rule, until widespread changes have appeared throughout the entire brain.

The time that elapses between the infliction of the lesion and the development of these secondary changes corresponds quite accurately with the period of time between the traumatic injury or the initial disease and the development of epilepsy.

If we operate upon cases which have run a course of many years, removal of the initial focus of disease will have little effect upon the general sclerosis that has been established. It is this general sclerosis that keeps up, as it were, the epileptic habit. The inference to be drawn from this is, that we should remove the focus of disease before secondary changes have been set up. This is equivalent to asking prompt surgical interference in all cases of traumatic injury to the skull in which there is any reason to suppose that serious harm has been done to the brain, and also in those cases in which the occurrence of a localised hemorrhage of non-traumatic origin is more than likely to give rise to epilepsy later on. The operations themselves, if skilfully done, are borne so well by persons above the age of five years that a more energetic surgical treatment in the earlier stages of these troubles will be productive of great good in the way of preventing the development of epilepsy. I have not yet got beyond the point of believing that the only way to cure epilepsy is to prevent its development.

The old method of trephining for traumatic epilepsy has been so frequently recorded as productive of good that we must endeavour to find some explanation for the effects of this procedure. It will not do to classify it simply, as Dr. White does, as one of those cases in which the operation *per se* helps ; I am inclined rather to believe that the frequent occurrence of cysts in traumatic cases, and also in cases of old cortical hemorrhages, accounts for the improvement following upon the release of pressure over a cystic area. The excision of cortical tissue which has been considered the only rational method in the treatment of epilepsy since Horsley first recommended it, seems to me, after all, to be of questionable merit. If the disease involved the motor area, excision of the part is apt to be followed by paralysis. This most patients are willing to bear, provided they can be promised a freedom from future attacks. In all but the most acute cases such promise can scarcely be given. Moreover, if the injury happened to involve other than motor areas, particularly if it involved the occipital or even the frontal portions of the brain,

excision of any considerable cortical tissue would be in the nature of a rather dangerous experiment, inasmuch as the resulting loss of function could not well be foretold. Taking this in connection with the fact that the excision of tissue does not seem rational after the development of a general sclerosis, or gliosis as Chaslin would have it, it is evident that this "rational method" is applicable to only very few cases.

It is our intention to continue this series of operations in the hope of being able to determine those cases in which the operations promise good results. For the present I am bound to acknowledge that the prospects are rather gloomy, and that the successful cases will probably be those in which there is some very tangible organic lesion which has been removed at a very early period, or those cases in which, after traumatic injury to the skull, trephining has been done before the effect of depression of the skull upon the brain has resulted in the development of epilepsy. Considering the seriousness of epileptic disease and the slight danger attending the opening the skull, I believe it to be the surgeon's duty, in every case in which there is the shadow of a doubt about the effect of a traumatic injury to the skull or brain, to trephine the skull and thus remove the cause of an epilepsy that would be apt to be developed.—*The American Journal of the Medical Sciences, November*, 1892, p. 503.

[See also Synopsis of this volume of the *Retrospect*.]

DISEASES OF BONES, JOINTS, MUSCLES, &c.

47.—A METHOD OF TREATING COMPOUND FRACTURES.

By Frederick Treves, F.R.C.S., Surgeon to the London Hospital.

The present paper deals with a method for treating compound fractures and with the results of that treatment, as illustrated by the cases admitted into the author's wards at the London Hospital during the last six years.

The method aims at being simple, and in the following account it may be considered as applied to the commonest of compound fractures, viz., those of the leg.

On admission, the limb is covered with lint soaked in carbolic lotion and is subsequently cleaned with the greatest care;

protruding bone is replaced, loose or damaged bone is removed, and the broken ends are adjusted by means of splints with as little delay as possible.

1. Ordinary well-padded wooden splints are employed, but under no circumstances is the limb secured to the splint by means of strapping. Strapping may be used to form a stirrup whereby extension may be applied in fractures of the femur or humerus, but no form of plaster appears to be other than objectionable when the question of fixing the limb is concerned. If the strapping be adjusted with sufficient firmness, it will often be found that within twenty-four hours the limb has swollen and the strips of plaster are cutting into the soft parts and are impeding the circulation. The strapping then has to be cut or re-applied, and a second adjustment of the limb is rendered necessary. On the other hand, in process of time, the band of strapping is found to have come loose from shrinking of the limb, and a further readjustment of the fractured parts is called for. In the place of plaster, straps of fine webbing and buckles are made use of to secure the limb to the splint. These vary in length, and are applicable to all parts. If found to be too tight or too loose they can be altered as often as necessary in the day without the least disturbance of the limb. In this way the limb can be secured with a proper degree of firmness. Where the webbing crosses the shin or the dorsum of the foot a small shield made of gutta-percha, and lined with lint, is interposed.

When side splints are employed these also are held in place by straps and buckles.

No bandages are ever applied. They are quite unnecessary. They cannot be readily tightened or loosened, and they cover up to an undesirable extent the damaged parts.

2. In the second place the limb is kept throughout in the open air. This would happen by necessity, more or less, in the case of the upper limb, but it is insisted upon also in all fractures of the lower limb in which there is a wound. If the principles of aseptic surgery be well founded, a worse atmosphere with which to surround a wound could scarcely be found than that which exists under the bedclothes. This atmosphere is confined, is hot and moist, and when flatus is passed or the bed-pan is used must of necessity become especially offensive. In all compound fractures of the leg or thigh the limb is kept throughout entirely uncovered as well by night as by day and in the winter as in the summer. In cold weather the nurse makes a cotton-wool cap for the foot, but during the six years in which this rule of uncovering the limb has been observed there have been no complaints of chill or of evils arising from exposure. It might be mentioned that in the author's wards in all cases of wound of the lower limb, including amputation wounds, and in all cases of ulcer, the

part is kept throughout the whole period of treatment uncovered save by the necessary dressings, and that since this plan has been adopted the results have been infinitely improved.

3. The third element in the treatment concerns the care of the wound. In cases of compound fracture there is usually a not inconsiderable amount of bleeding and an oozing from the wound which will often be continued for many days. It is very desirable that this fluid should not be pent up in the limb, and that it should be allowed the freest possible means of escape. The plan of sealing the wound with collodion may be spoken of in general terms as bad. It can in no way control the oozing, which may long continue from the damaged parts, and merely confines within the recesses of the limb a fluid which is admirably adapted for the development of bacteria.

While a free exit should be given for all discharges of blood and serum such a barrier must, at the same time, be erected as will prevent the entrance of pus-producing bacteria. A dressing of antiseptic gauze wool may possibly meet these conditions, but in a large proportion of cases such a dressing needs to be very frequently changed, and such a change cannot always be effected without disturbing the position of the broken bones and putting the patient to no little inconvenience.

In the present collection of cases the wounds have been simply covered by a heap of dry antiseptic powder, which has been applied without stint. This covering of powder may be considered to seal the wound so far as the possible entrance of bacteria is concerned, while at the same time it in no way impedes the free escape of blood and serum from the damaged parts.

The discharge finding its way into the protecting powder forms with it a harmless scab or crust. As the powder becomes saturated more and more of it is applied, but the crust produced is not disturbed. In certain cases the oozing continues for many days, and in one or two instances the crust produced has exceeded the size of the adult fist. The powder employed has been iodoform or creolin. The latter has been found to be the more convenient. For the first few days the powder may need to be dusted on every few hours, and as the limb is kept always uncovered the saturation of the crust can be at once noticed. When no more blood is found to be escaping the powder is discontinued, and some seven days after this period the artificial scab is removed and the wound beneath may be expected to be healed or to be healing.

When the laceration occurs upon the upper surface of the limb there is no difficulty in covering it with powder. When it is placed upon the sides of the extremity a platform of cotton-wool must be so fixed in place that the powder when dusted upon it will bury the wound. The cotton-wool may be kept in

position by fixing it against the side splints, or by attaching it to the skin by gum.

The following advantages may be claimed for this method. It is simple and requires but the simplest appliances. The fracture when once adjusted need not be again disturbed. The damaged part is kept exposed to view, and the position of the ends of the bone can be ascertained at any moment. It may be claimed that the results, as shown, are satisfactory. *Sixty cases of Compound Fracture*:—Primary healing, 49 cases; suppuration, 7 cases; secondary amputation, 5 cases; total, 61 cases = one death.—*Annals of Surgery, February*, 1893, *p.* 140.

48.—ON THE TREATMENT OF SPINAL ABSCESS.

By W. Watson Cheyne, M.B., F.R.C.S., Surgeon to King's College Hospital.

We now know that the pathology of chronic suppuration is quite different from that of acute, and that a chronic abscess is merely a tuberculous tumour with a softened centre. Hence by simply opening and draining a chronic abscess we leave the essential part of the disease—the wall—untouched, and the main curative work has to be done by Nature. The first outcome of this more exact pathology was the attempt, after removal of the contents, to apply some bactericide to the abscess wall, and as at that time iodoform was much thought of as an antiseptic, that was the substance chosen. The original plan, which came from Vienna, was to introduce a trocar into the abscess cavity, evacuate the fluid contents, wash out the cavity with weak carbolic lotion till the fluid returned clear, inject a 10 per cent. emulsion of iodoform in olive oil and glycerine, and stitch up the puncture. In France the method was modified by the use of a solution of iodoform in ether instead of the emulsion. The results of this plan were very good as regards ultimate healing, though in most cases either the puncture wounds broke down and a sinus formed, which was some time in healing, or re-accumulation took place and the performance had to be repeated, sometimes several times (this procedure is not altogether safe).

Since these first attempts to act on the pathology of the disease it has become generally recognised that some more energetic treatment of the wall of the abscess is desirable. In my lectures at the Royal College of Surgeons I pointed out that there are three ways in which the abscess wall may be dealt with, namely:

1. Excision.—The most radical and satisfactory method is to dissect out the swelling without opening it, as if it were a cyst.

This is applicable to many cases; for example, to many glandular abscesses, to the subcutaneous tuberculous nodules of children (*gommes scrofuleuses*), to many abscesses connected with ribs and to some connected with other bones. Where this is done a clean cut wound is left which heals by first intention.

2. Piecemeal Removal of Wall.—If the abscess is too large, or its connections such that it cannot be dissected out in this way, the next best thing is to lay it freely open so as to see its interior, and then remove the wall by clipping, cutting, &c. This is possible in a good many cases of abscesses in the extremities, and also elsewhere, and in this way we can generally get a healthy wound which heals by first intention.

3. Scraping.—Failing either of these methods, we can still get rid of the greater part of the wall by making a smaller incision into the abscess, scraping away the wall with a Volkmann's spoon, or rubbing off the degenerating tissue by means of rough sponges, &c. I have been using this method in certain cases for the last four years, and the way in which it has been carried out in most instances is shortly as follows:—The necessary antiseptic precautions are of course taken, and a small incision is made into the abscess, somewhat larger than can admit the finger, which is then introduced, and the cavity thoroughly explored. The surface of the abscess cavity is then gently scraped with a Volkmann's spoon, preferably a flushing spoon, on the principle introduced by Mr. Barker, free exit being permitted to the fluid, and the finger being inserted from time to time to guide the spoon. Where the use of the spoon is dangerous—as towards the peritoneum or along a large vein, a good deal of the degenerating material can be removed by rubbing the surface with a piece of coarse sponge. If any loose piece of bone is felt, it should be removed, and the carious surface of the bone scraped if it can be got at. At the same time the cavity is thoroughly flushed out with warm (1 in 10,000) sublimate solution, and when it is thoroughly clean the fluid is squeezed out; one to two ounces of a ten per cent. emulsion of iodoform in glycerine containing a small proportion of bichloride of mercury is introduced, and the external wound and also the wound in the muscles if present, is stitched up. I have treated twenty-four cases, chiefly lumbar and psoas abscess, essentially in this way, with slight variations in some case. Of these, thirteen healed by first intention, and they were sent out in a suitable apparatus, and with apparently no recurrence; eleven of these remained well, but two were brought back some months later with sinuses, reaccumulation having taken place, and the scars having given way. In one of these there was very little discharge, and I opened up the sinus, scraped it, washed it out, dissected away the cutaneous margin, injected iodoform and glycerine, and

stitched it up; the wound healed by first intention, and remains well. In the other there was free suppuration, and it is still open. In seven of the remainder the greater part of the wound healed by first intention, but a small sinus remained at one part; in two of these the sinus healed in about a month without anything further being done; in one it healed in a few weeks after Koch's treatment; in the remaining four, as healing had not occurred after a month, the sinuses were opened up, scraped, and injected, and then healed by first intention (in two of these no iodoform was used in the first instance, but was employed on the second occasion). One case healed by first intention, but the cavity filled up again, and the patient would not have anything further done. Thus of the twenty-one cases, nineteen were cured either at once or after a second operation, one had recurrence at home and became septic, and one refused further treatment. The remaining three cases died, one of pneumonia, and one several months after he left the hospital of suppuration in the cervical spinal canal (paralysis and death in two or three days); neither of these deaths having anything to do with the treatment. The last case, however, died, no doubt as the direct result of the operation. This was a child, aged two, with acute curvature in the lower dorsal region of about six months' standing, and right psoas abscess noticed for a month. An incision was made into the abscess just in front of the anterior iliac spine, the abscess was scraped out, washed out with 1 in 4,000 sublimate, and stitched up; no iodoform was employed. The operation only lasted fifteen minutes, and the child quickly recovered and seemed quite well during the evening; it was only sick once just after the operation. At five a.m. next morning the nurse noticed that the child's hands were rather cold, but otherwise it seemed well, and took its milk. At six a.m. the house-surgeon was called up, and found the child in a state of extreme collapse, and it died twenty-five minutes later. On post-mortem examination, no cause of death could be discovered; the abscess cavity was empty; there was no bleeding; there was a small psoas abscess on the other side, and a large caseous mass in the body of the twelfth dorsal vertebra. I am quite at a loss to what to ascribe the fatal result; had iodoform been used, one might have thought of iodoform poisoning, but it was not employed here. It has been suggested that it was some after-effect of chloroform, but this I can hardly believe. The only other suggestion I can make is fatty embolism; the lungs in this case seemed quite healthy, but were not examined microscopically. I have in two other cases had a good deal of collapse after the operation, but that followed immediately on it, and in these cases it struck me that possibly in scraping the wall the sympathetic may have been interfered with. I have also heard

of another case where death occurred in forty hours after this procedure, and where nothing was found post-mortem to account for it. Hence, while the procedure is on the whole extremely satisfactory as regards the cure of the abscess, more so than any other method short of excision of the sac, it cannot be regarded as an absolutely safe measure; but, considering the extreme gravity of the disease, I think that this small proportion of risk is well worth running.

Methods applicable to the treatment of Spinal Abscess.—The first and best method of treating chronic abscess—namely, the complete removal of the disease by dissection—is only applicable in very rare instances, practically only in those very uncommon cases in which the disease affects the posterior or lateral parts of the vertebræ, the spines, laminæ or transverse processes, not the bodies. I have only had one such case, and in that instance I was able to dissect out the abscess and remove the spinous processes, and the wound healed by first intention. In a case of cervical spinal disease affecting the body of the vertebræ I was also able to dissect out the abscess, but of course the bone itself could be only imperfectly dealt with. The third method—namely, scraping, washing, and injecting—is that which is applicable for retropharyngeal and psoas abscess. In the case of retropharyngeal abscess it is best to employ Chiene's incision behind the sterno-mastoid, and great care must be taken in scraping not to make a communication with the pharynx. In psoas abscess the incision may be made either in front of the anterior iliac spine or in the lumbar region. Here, of course, the question of the most dependent opening does not arise. Our object is to get an opening which will give the best access to all parts of the cavity, and, if the abscess has passed into the thigh, an incision in the neighbourhood of the anterior superior iliac spine is probably the best; if it be still in the abdomen, a lumbar incision is no doubt nearer the bone disease. From the first a lumbar incision has been looked on as the best, both as regards dependency and distance from sources of contamination, and Mr. Treves subsequently advocated it as enabling the surgeon to get at and remove the diseased bone. This last point is not of much importance, because sequestra are much rarer in these cases than caries of the surface or caseous deposits in the bone, and these cannot be at all thoroughly dealt with by any method. In lower cervical, dorsal, and lumbar abscesses the best treatment is a combination of the second and third methods, that is to say, free incision into the external portion of the abscess with removal of the wall and then dilatation of the channel leading to the bodies, scraping, injection of iodoform, and subsequent accurate closure by stitches.—*British Medical Journal*, *Dec.* 31, 1892, *p.* 1421.

49.—A CLINICAL CLASSIFICATION OF HIP-DISEASE.

By Robert W. Lovett, M.D., Boston.

Hip-disease, I believe, falls into four well-marked types, each of which corresponds to a particular type of the pathological process.

These four types are: (1) *The Destructive Form*, where the disease is rapid, severe, and but little influenced by ordinary treatment; extensive infiltration of the soft parts takes place, and in most instances the disease passes on to a fatal issue. (2) *The Painful Form*, where pain is a prominent symptom, and exacerbations are common. (3) *The Quiet or Painless Form*, where pain is an unimportant factor or is entirely absent. (4) *The Transient or Ephemeral Form*, where the symptoms are mild and the course of the disease is run in a few months.

(*a*) *The Destructive Form.*—The type of hip-disease which I would place in this class occurs most often in children of tuberculous inheritance and poor vitality. Its onset is rapid and painful, often excessively painful. There is, almost from the first, much thickening of the trochanter and periarticular tissues. The general condition is rapidly impaired, and abscess formation takes place early. One abscess follows another with profuse discharge through sinuses which open widely and are surrounded by colourless granulations. This type of disease most often begins as such, and is clearly a type by itself throughout. At other times, but rarely, it is superadded to one of the forms about to be described. The temperature is high, the wasting rapid, and a porky induration of the thigh ensues.

Such children, as I have observed them, die most often of exhaustion, they are particularly liable to tubercular meningitis, and, if they live, it is these cases that develop amyloid degeneration. The course of the disease is rapid in most cases, and the prognosis is poor. Under favourable conditions a certain proportion recover with stiff and shortened legs, others are saved only by excision.

It seems probable that in some of these cases at least, the disease is an acute infectious osteomyelitis, not necessarily produced by the bacillus of tuberculosis or by any specific bacillus, but being a local septic process, a pyæmia, caused most often by the staphylococci, exceptionally by the streptococci. The rapidity and the destructive character of the process in some cases points to a pathological state more likely to be due to a process of this sort than to tuberculosis.

In other cases it is doubtless merely a tuberculosis of unusually rapid and extensive character. Certain individuals, either by inheritance or by peculiarity of constitution, offer a most

favourable soil for the rapid development of the tubercle bacillus and if these individuals should happen to receive a large initial dose of the poison, it is not unreasonable to expect that in them the disease would be extensive, rapid and destructive.

Probably the infiltrated form of tuberculosis is more common than the encysted form in these cases. The whole spongy tissue of the epiphysis is probably suddenly filled up with a creamy tuberculous infiltration which degenerates most rapidly and erodes most extensively the surrounding parts. In other cases the encysted form is probably present but possesses unusual capabilities for destructive and rapid growth. So that just as in pulmonary tuberculosis the florid form of phthisis stands off from the more chronic manifestations, so in bone tuberculosis one finds a rapid and destructive form of the disease.

(*b*) *The Painful Form.*—This, the commonest type of hip-disease, is described as the painful form for want of a better name. It serves to distinguish it from the quiet or painless form to be described next, yet it is only descriptive of one symptom. The cases that I have in mind are those irritable cases which form the bulk of the disease where pain is caused by manipulation and is present in the form of night-cries and continued pain. It is not steadily present, and is controlled to a greater or less extent by treatment, but the tendency to pain exists and painful exacerbations come on spontaneously or are caused by slight traumatisms.

Muscular spasm is, of course, an integral symptom of all forms of hip-disease, and is always present in painful cases as in the others. Generally some motion is allowed in the joint, but the muscles are quick to catch and hold the joint when the limit of motion is reached.

Malpositions of the limb are very common and come on rapidly, generally with an exacerbation of pain and with complete muscular fixation, but they yield readily to treatment and motion returns to the joint to a certain extent. In short, the muscular spasm varies so that while most often considerable motion may be allowed in the joint, again, complete fixation may be present for a longer or shorter time. Abscess formation is common in this form and is most often preceded by an acute exacerbation of pain. Thickening of the trochanter is always present but is moderate in amount.

In short, the type is the common one to be found in hip-disease. It occurs more often in children under six years than does the painless type, and although the term "painful" describes only one feature of it, this feature is the most characteristic and the most persistent. Joint irritability, pain and rapid deformity are its striking characteristics.

The general course of the disease, I believe, is shorter than in the painless form, to be described next, and the joint likely to be a better one after the disease has run its course, consequently I should be inclined to give a better prognosis as to a rapid and favourable issue, other things being equal, than in the quite and painless type of the disease.

(*c*) *The Painless or Quiet Form.*—This name represents, it seems to me, a well-marked and distinct type of hip-disease which we can all recognise. It seems, moreover, to apply to a certain type of joint-disease in general, but that is aside from the present question.

In the hip there is undoubtedly one form of inflammation that runs its course quietly, slowly and with little or no pain; it is these cases which I have included in this type. Pain as a prominent symptom is absent, although night-cries may be present early in the disease, and later a painful stage may be brought on by a fall or by some traumatism to the joint. In general, muscular spasm is the important and prominent feature in this form of the disease; it is persistent and most often allows no motion, but holds the joint rigidly fixed. Passive manipulation is not painful, but fails to move the joint.

The malpositions in this form occur slowly and are much more persistent and intractable than in the painful cases, and yield very slowly to treatment. Thickening of the trochanter is considerable, but the atrophy and shortening of the limb are more marked than in any other type of hip-disease, being often extreme. This quiet and comparatively painless type of hip-disease is more likely to occur in children over six years of age than in younger children, and it is not so liable as the other forms to occur in children of a marked tuberculous taint. Such cases are common enough; some go through the whole course of the disease without any pain, while others have it only temporarily, perhaps as the result of some traumatism.

In general this type runs a slower course, is less likely to abscess-formation, and possibly may end in a stiff joint. It is not so liable to mishaps as the preceding form, but the functional results are not apt to be so good in the matter of motion, shortening or atrophy.

The pathology of painful and painless hip-disease can best, perhaps, be discussed in one place. In general the presence of foci of tuberculosis in the head of the femur is not in itself likely to excite pain except when the foci are near enough to the articular surface to involve the synovial membrane in the irritation which surrounds them. But a large proportion of active foci of tuberculosis which form about the epiphysis are on the articular side of the epiphysis and grow towards the joint surface, consequently it is reasonable to suppose that most

active foci will cause synovial irritation and pain in the course of their growth. The early autopsies of Lannelongue have shown more clearly than anything else that pain begins when the synovial membrane becomes affected, but that the synovial membrane is often affected without the occurrence of pain, is shown by daily observation in advanced cases of hip-disease where pain has never been a symptom. For this reason I take it that painful hip-disease represents the ordinary form of bone-tuberculosis where foci form in the epiphysis and involve the joint in their growth. They are surrounded by a zone of hyperæmia and irritation, and generally break down into pus. This is the most common form clinically and pathologically.

Cases without pain, which I have classed as painless or quiet cases, I assume are caused by a different form of bone-tuberculosis, a well-recognised form pathologically where the tendency is not toward purulent but toward fibrous degeneration. The older name was "caries sicca" but the newer pathology in dropping the term caries, speaks of it merely as a fibroid form of bone tuberculosis.

The process is the same in general as that of ordinary bone tuberculosis, except that the foci are surrounded by less irritation and hyperæmia, and in place of it a condensing process goes on around. It is a bone-tuberculosis just as the other is, but it causes much less irritation around it; it is slower in its progress and it has little or no tendency to purulent degeneration. It is a well-recognised type of bone tuberculosis and its characteristics are well-established. It must be evident that it seems to furnish a reasonable pathological explanation for those cases of quiet or painless hip-disease which are not by any means the most common manifestation of the disease, but which are so common as to be familiar to us all.

(*d*) *The Transient or Ephemeral Form.*—I have included under this head those somewhat unusual cases of hip-disease which begin in a typical way but subside in the course of a few weeks or months. These cases would at first be set down as due to simple acute synovitis, but some of them show plainly enough that there is a bony lesion at the foundation of the trouble. They simulate cases of acute synovitis very closely, of course.

Here there is a case which seems to be a true bony lesion affecting the growth of the bone, which recovered permanently in three months. Such cases are not altogether uncommon, even when cases of pure acute synovitis are left out of account.

The early symptoms of these cases give no clue to the fact that they are not routine cases of hip-disease. Muscular spasm, pain, atrophy, night-cries, &c., are all present, and the case in every way resembles the beginning of mild hip-disease. It is

only in the light of its later history that its true character becomes evident.

It will be seen that these cases do not present any early symptoms different from those of hip-disease of the common type, so that their recognition seems impossible; moreover, hip-disease is characterised by such marked remissions of symptoms that this type of disease is easily simulated in that way. But the fact remains that, even if one leaves out of consideration cases of acute synovitis, certain cases presenting all the symptoms of true hip-disease run their course to a favourable termination within a few weeks or months, and the matter is one of such practical importance that it deserves recognition.—*Boston Medical and Surgical Journal, October* 13, 1892, *p.* 355.

50.—ON THE TREATMENT OF SEVERE CASES OF CLUB-FOOT IN THE INFANT.

By W. J. Walsham, F.R.C.S., Surgeon-in-charge of the Orthopædic Department St. Bartholomew's Hospital.

It seems that almost any method, if perseveringly and properly carried out, will suffice in these for the perfect and absolute rectification of the foot. For severe cases almost every form of treatment and apparatus with which I am acquainted has been honestly tried in the orthopædic department, and I have come to the conclusion that on the whole there is nothing better than the plaster-of-Paris method. The practice in the department has been to begin the treatment immediately after birth, and to endeavour, with as little delay as possible, to overcome the varus position and bring the foot in line with the leg, and then to divide the tendo Achillis, and to restore the foot at once, if practicable, to the normal position by what is known as the immediate method of rectification.

I rarely divide the tibial tendons, and agree with those who think that they have very little influence in the production of the deformity. I hold that, as of the peronei in flat-foot, the tenseness of these tendons, when present, is due to passive shortening following on the approximation of their ends consequent on the malposition and altered shape of the bones, and not upon active spasmodic contraction depending upon some fault of the central nervous system. Where, however, the tibials have been felt tense and resisting they have been unhesitatingly tenotomised. But as a rule they have been found to elongate readily as the bone deformity is overcome.

Although for the straightening of the foot I think plaster-of-Paris is, on the whole, preferable, I am quite ready to admit that other methods—such as the application of the varus splint, elastic tension, &c.—will answer equally well. The advantages of plaster in out-patient practice are manifold. Thus, if the plaster bandage is properly applied, we can ensure it keeping on for at least a week. Pressure is uniform and continuously kept up, there are no straps or bandages to become loose, and if a thick layer of cotton-wool is carefully placed below the plaster there need be absolutely no risk of sores or chafing. It gives less trouble to the parents, and above all it is cheap. At least once a week, better twice a week, the plaster should be removed, and before it is reapplied systematic passive movements of the joints and massage of the muscles should be employed. In using the plaster-of-Paris there are as many details to attend to as there are in the use of Scarpa's shoe or other apparatus. Some little experience is required to know how tight or how loose to apply the bandage, so as not, on the one hand, to cause injurious constriction, nor, on the other, to allow the child to kick it off. Moreover, the foot at each application must be held in the corrected position as far as it will go until the plaster is firmly set.

Whatever method is used the varus position should not be too quickly overcome. We are not dealing in these severe cases merely with contractions of tendons, fasciæ, and ligaments, but with malposition and altered shape of the bones. Rapid overcoming of the varus position can only be accomplished by stretching or dividing the soft tissues, leaving the deformities of the bone untouched. By the division of tendons, muscles, and ligaments on the inner side of the sole, the bones in front of Chopart's joint with the os calcis can no doubt be wheeled round on the head and under surface of the astragalus, at the so-called subastragaloid joint, so as to bring the foot more or less in line with the leg; but the articular surfaces are no longer in contact; the neck of the astragalus still keeps its faulty direction, the anterior end of the os calcis remains bent, and the other bones retain their more or less wedge-like shape. After the tendo Achillis has been divided, the scaphoid with the os calcis and the bones in front of them are only too likely to roll inwards again as the divided tissues on the inner side of the foot slowly cicatrise and contract. I have come to regard the neglect to correct the deformity of the bones as the most common cause of what are known as relapsed, or what it would perhaps be better to call uncured, cases.

Holding then the view that we should aim at acting on the bones in the correction of the deformity, the rapid stretching or division of the tissues on the inner side of the foot do not in

all cases seem advisable procedures. Though fully prepared to admit that at the time of their division the foot can often—one might perhaps say as a rule—in the infant, be brought into line with the leg, the fact remains that the bones still retain their faulty shape, and further, the pull that can be exercised on them through these ligaments is, after their division, lost.

If this view of the principle that should guide us is correct, namely that the bones rather than the ligaments should be acted on, it is another reason, if such can be necessary, for undertaking the treatment at the earliest possible date. The bones at this period are soft and pliable and can by gradual moulding be made to take almost any shape. The infant's foot, therefore, should not, in my opinion, be brought completely into a straight line with the leg under some six weeks to two months of treatment.

The same objections as apply to the rapid correction of the varus do not hold good in the rapid overcoming of the equinus position, at least in the less severe degrees of the affection. Here we have merely the astragalus partially tilted out of its socket, but at first, and in cases of only moderate severity, no alteration, or very little, of the articular facets. If the bone therefore can be at once replaced in its socket after division of the tendo Achillis there seems no reason why it should not at once be done. There is certainly no danger of non-union of the tendo Achillis in consequence of the ends being widely separated, and by getting the bone back as soon as possible into its socket the risks of alteration in the facets which have been held apart are to a great extent avoided.

For the last five or six years, in all cases where tenotomy of the tendo Achillis has appeared necessary, the foot, where practicable, has been carried at once beyond the right angle, leaving often a gap of as much as half an inch, or even an inch in older children, between the divided ends. Although some hundreds of cases have now been treated in this way in the orthopædic department no case of non-union of the tendon or other mishap has been met with.

In nearly all instances an abundance of firm uniting material has been formed. The only cases in which the material has been weak have been where the pad covering the puncture has pressed it too tightly towards the bone. I am particular now in instructing the house-surgeon and dressers never to apply the strapping over the puncture-pad transversely, since it is conceivable that if the skin is carried in towards the bone between the ends of the tendon when widely separated, non-union, or very weak union, might be the result. When, therefore, the foot can at once be corrected, this has always been done, and the results have been excellent. But there are

cases in which the foot cannot be brought to a right angle. The hindrance to complete flexion may then be due, to some extent, to contraction of the posterior ligaments, and in some cases their division, as advocated by Mr. Parker, is no doubt of service. In the majority of such cases, however, when the foot will not go up to a right angle it is, I believe, not the result of any contraction of the tendon or ligaments, but of a downward deflection of the astragaloid neck.

When the normal wedge-like shape with the base in front of the trochlear surface is remembered, it will be understood why, apply what force we will, the foot cannot be brought up to, much less beyond, a right angle. Division of the tendo Achillis or of the posterior ligaments of the ankle-joints, beyond loosening the joint and allowing the articular facets posteriorly to be somewhat separated, exercises no influence upon the flexion of the foot. The neck of the astragalus in front of the trochlear surface comes into contact with the tibia and external malleolus, and this locking of the bones effectually prevents the foot being further flexed at the ankle-joint. Much has been written on the inward deflection of the neck of the astragalus, but its downward bend appears to have escaped the attention it undoubtedly deserves. In the less severe cases, long-continued pressure, either by mechanical means or by plaster-of-Paris, will no doubt succeed; but the force must be applied gradually, as in the correction of the varus, so as to act upon the shape of the bone rather than as a mere stretching of the soft tissues. Here, again, the division of the ligaments in the sole of the foot may only do harm, inasmuch as it prevents their being made use of as a fixed point in the application of the correcting force.

It has been affirmed by some authorities that by continuous mechanical extension with Scarpa's shoe or other apparatus the foot in infants can always at length be brought beyond the right angle. In the majority of cases this is correct, but I have met with cases in which such apparatus, as well as plaster-of-Paris, has proved ineffectual, and sooner or later an operation on the tarsus has had, however unwillingly, to be performed.

In these exceptional cases I believe we can prognosticate from the first that, do what we will, an operation on the tarsus of some sort will ultimately be required. In these infants the leg is short, fat, and stumpy; the heel exceedingly poorly developed, the parts rigid, the outer border of the foot excessively rounded, and, if a perpendicular is dropped down the centre of the leg, much more of the middle of the outer part of the foot than in any ordinary severe case of talipes lies to the outer side of this line. Moreover, in the cases to which I am especially referring, the thigh cannot always be fully rotated outwards at the hip-joint. For these patients I have tried, and perseveringly tried,

almost every form of treatment and apparatus that, as far as I know, has been advised, and, as a rule, have been disappointed. The varus position has never been completely overcome, and after division of the tendo Achillis and posterior ligaments, even severe wrenching and the application of as much manual force as could safely be used failed to bring the foot up to a right angle. Neither could it be brought up by slowly-applied mechanical extensions.

I have not done a bone operation on these patients at a younger age than 2 or 3 years, but at that tender age I have found that, even after removal of the astragalus, the foot in some instances could not be got into a satisfactory position until further portions of the bones had been excised.—*British Medical Journal*, *February* 18, 1893, *p.* 339.

51.—ON A NEW OPERATION FOR PARALYTIC TALIPES VALGUS.

By B. F. Parrish, M.D., New York.

The muscles of the lower limbs are those most frequently affected by this disease. The muscles of the leg are more frequently involved than those of the thigh. Of the leg muscles, the anterior and posterior tibials, the muscles of the calf, and the peroneals are, in the order named, I believe, the most frequently affected.

During last winter my attention was particularly drawn to such cases. In my own practice and in the private and hospital practice of Dr. Lewis A. Sayre and Dr. Reginald H. Sayre I was forcibly struck by the number of cases of paralytic talipes valgus in which the extensor proprius pollicis was unaffected. Exactly how often this muscle escapes in such cases I am unable to say. My observations and researches lead me to believe that in not more than two or three per cent. of the cases where the anterior tibial is paralysed is the extensor longus pollicis also involved. As Dr. Sayre observes in his admirable book on *Orthopædic Surgery*, the extensor pollicis is often so strong in these cases as to almost or completely disarticulate the bones of the great toe at the phalangeal joint.

In cases where the anterior tibial was completely paralysed, or so near so that it could not perform its function after careful and prolonged treatment by electricity, massage, &c., the idea occurred to me that the strong extensor pollicis might be able to bear part or all the burden of its weaker neighbour. Accordingly, I began a series of experiments on the cadaver to see if my theory could be put into practice.

After isolating both the anterior tibial and the extensor pollicis muscles, I placed the foot in the position of inversion and extension and sewed the shortened tendon of the first to the lengthened tendon of the latter. First I sewed the two tendons together above the annular ligament. Then, placing the foot in the position of extreme eversion, I pulled upon the belly of the extensor pollicis muscle, when the foot returned from its everted position, the arch was raised, and the great toe was extended. After thoroughly satisfying myself with this experiment, I then, on another subject, sewed the two tendons together below the annular ligament, and repeated the experiment with equally satisfactory results. Each time after the extensor pollicis has done the duty of the anterior tibial it resumed its own function. Thus satisfied that my principle was correct, the next thing to be done was to put it into practice upon the living subject.

On May 15, 1892, the first operation was done, with the assistance of Dr. Lewis A. Sayre and Dr. Reginald H. Sayre. The patient, May C., aged three years and ten months, had had infantile paralysis when eleven months old. At the time of operation both tibial muscles of the right leg were completely paralysed, giving rise to talipes valgus. All the other muscles which had been involved had recovered. The foot could easily be put in the correct position. The extensor pollicis was moderately strong.

Under chloroform anæsthesia an incision was made over the space between the tendons of the anterior tibial and extensor pollicis muscles, extending from the annular ligament three inches or three inches and a half upward. Both the tendons were found and isolated. The tendon sheaths were cut away, and the foot was inverted and extended so as to shorten up the tendon of the anterior tibial and pull down the tendon of the extensor pollicis. The opposing tendon surfaces were then freshened with the knife and sewed together with a catgut suture for a space of an inch or more, and the wound was closed. The foot was then moulded into the proper position and retained there by a plaster-of-Paris bandage, which was worn for a month. When the dressings were removed the wound was found perfectly healed and the foot in a much better position than before the operation. Since the operation I have been using electricity, massage, &c., loosening up the adhesions which naturally formed. From time to time since the first appearance of the paralysis the child has had recurring attacks of the same disease. Since the operation she has had one or two attacks. What will be the final outcome of the case I am unable to say at the present time.

I hope to report her case in full at a later date, together with several other cases under observation.

In some cases a better result may be obtained by cutting off the tendon of the extensor pollicis and sewing it on to the common extensor of the toes, and then cutting the anterior tibial tendon and uniting the proximal end of the extensor pollicis to the distal end of the anterior tibial, thereby allowing the extensor pollicis only the function of the anterior tibial muscle. In cases where the posterior tibial is also paralysed it may be necessary to sew its tendon fast to the tendo Achillis. However, the important principle of grafting tendons and having a live muscle do the work of a dead one is that which I wish particularly to establish in this article. As I have said above, this live muscle may also do its own work in addition to that of its neighbour, or it may have its original function transferred to still another muscle.

Although the anatomical arrangement of the muscles concerned in paralytic talipes valgus probably affords the best opportunity for the employment of the principle, it may be advantageously used in various other deformities where other muscles are paralysed.

Where the muscles of the calf are paralysed, thus giving rise to paralytic talipes calcaneus, we may sew the tendo Achillis to the tendon of the posterior tibial, provided that muscle is good and strong, or it may be attached to either the flexor longus pollicis or the flexor longus digitorum, with a reasonable hope of materially benefiting the patient. Should the common extensor of the toes alone be paralysed, its tendons might be grafted to the extensor pollicis, to the anterior tibial, or to both. In other cases, too, the principle may be employed.

In any case, if the deformity is not readily reducible, it should be made so before any operation is done upon the tendons. If the tissues causing the deformity are only contracted, then stretch them until the deformity is thoroughly overcome. If the tissues are contracted, then reduce the deformity by cutting them. Be perfectly sure that the deformity is thoroughly reduced before you proceed further.

When I had done, upon the cadaver, the operation described above, the only doubt existing in my mind was whether the adhesions resulting from the traumatism done to the adjacent tissues would not be so strong that they could not be got rid of. I am now thoroughly convinced that these adhesions can be loosened by the proper use of electricity and manipulation to the parts. Of course it takes time for this part of the work. The result will surely compensate the surgeon for the time and trouble. At the same time, the muscle which has double work to perform should be further developed to be equal to its task.

If, on the other hand, the adhesions resisted all efforts of the surgeon, and still stuck the tendons to the surrounding tissues,

the arch of the foot would be maintained and the position of the foot improved. And I believe the patient would be able to walk fairly comfortably without the assistance of a brace. If my fellow-practitioners will employ the principle here laid down, I believe that thousands of patients who are now wearing braces or crutches may be relieved of their deformities and also their artificial supports.—*New York Medical Journal*, *October* 8, 1892, *p.* 402.

52.—ON THE TREATMENT OF FLAT-FOOT.

By John Dane, B.A., House Officer, Massachusetts General Hospital.

Non-Mechanical Treatment.—As most of the cases come on from a fatigued state of the system, general tonic and hygiene treatment is of the first importance in dealing with flat-foot. Of measures addressed directly to the feet the simplest is the method of walking insisted upon so much by Whitman. The patient should be made to walk with the toes pointing directly forward; for this position gives the arch the greatest muscular support possible, and compels the body to be raised at every step. Next comes *Exercises.*—The admirable set of gymnastic exercises as prescribed by Ellis, which consists essentially in raising the body upon the toes and slowly rotating the heels outwards. In addition to this a broad, flat, laced boot with a low heel should always be worn, which should preferably have a slight inward curve to counteract the tendency of the fore foot to evert.

Mechanical Treatment.—The object of all mechanical devices is to prop up the arch and so prevent the os calcis from rolling over inwards, and the scaphoid and astragalus from sinking.

Elastics.—Of these a large number have been suggested, such as elastic spring bands passed under the instep and fastened to a leather strap around the calf; and short steel springs fastened to the heel of the shoe inside, and so arranged as to press up against the instep. Thomas, of Liverpool, invented a method of his own. By means of an inclined plane in the sole of the boot, running from the heel to a point just back of the great toe, he raises the inner side of the foot sufficiently to transfer the weight outwards away from the injured internal arch.

Pad.—Pads of every variety of material have been worn inside the shoe; but they soon flatten down and cease to be of much service; while, if of any hard material, the difficulty of getting them to fit accurately at first is very great. With a single exception they have all been discarded, and that has been retained only as a preliminary test. If the feet are painful and suspected

of being flat, a pad is made up of sheet wadding folded several times upon itself until it is about four by five inches, and one inch thick. By means of a roller bandage this pad is held firmly in place under the middle of the sole of the foot, and worn inside the stocking. If the case be one of flat-foot, the pain will generally be much relieved, and we can promise good results from the use of a plate.

Plates.—This, which is by far the best form of flat-foot apparatus, consists of a thin sheet of metal fitted accurately to the sole of the foot and worn inside the shoe, generally outside the stocking. These plates differ: (1) In their mode of manufacture; (2) in their shape; (3) in their material.

For all kinds of plates a mould or pattern of the foot must be taken. Whitman has a most elaborate method for this, by which he first takes two plaster shells of the upper and under surfaces of the foot, adjusts these together, and then by filling up with plaster gets an exact production of the foot, which he sends to the foundry and has cast in iron. Upon this model the plate is forged from the best twenty gauge steel.

A much simpler method is to flow plaster-of-Paris into a shallow trough, and when it is about to harden to have the patient step in it. In this negative a positive of the sole of the foot can easily be run.

An ingenious method was introduced by Dr. F. B. Harrington, of Boston. He first marks out on the foot by means of a camel's-hair brush, wet with a mixture of ink or glycerine, the shape of his plate. Next a piece of Canton flannel is pressed against the foot. In this way the shape is marked out on the flannel. The flannel is then cut out, soaked in plaster-of-Paris, wrung nearly dry, and applied to the sole of the foot to harden in position. When this shell is dry it is taken off, its concave surface (corresponding to the foot) filled in with fresh plaster, and when hard sent to the machinist, who uses it simply as a model to which to fit his plate. The thickness of the flannel is equal to that of the stocking outside of which the plate is to be worn.

The method used by the writer consists in making a cast of the foot in dentist's wax. When put into hot water the wax becomes perfectly supple, and can be moulded to the foot and cut to the desired shape. As it cools it grows hard again, and can be greased and backed with plaster on either side according as a negative or positive model is wanted. The advantage of this method is, for ordinary plates, its speed, and cleanliness; while for rubber plate negatives it leaves the model much smoother and allows for the extra size needed.

Shape of Plate.—Next as to shape of the plate. The fundamental form is simply a flat sheet of metal as wide as the sole of the foot, extending from the back of the heel to the webs

of the toes and bent up slightly on the inner side. Held firmly by the shoe, these plates have little tendency to slip and are quite comfortable; but they give only a limited support.

Against this pattern Whitman has urged that it is unnecessarily heavy, and that it interferes considerably with the free flexion of the foot while walking. To meet these difficulties he published in the *Boston Medical and Surgical Journal*, June 14, 1888, the description of the plate which has since gone by his name (Fig. 1). He takes a point, A, "beneath the base of the great

Fig. 1.

toe, just short of its bearing centre; a point B, just short of the bearing centre of the heel bone beneath its inner tuberosity; C, just above the head of the astragalus, a little in front and below the internal malleolus." These and a "point D, on the outer aspect of the foot just above and behind the tuberosity of the fifth metatarsal," he connects with curved lines as shown in the figures; A and B act as the two bearing points for the plate, and from them, at right angles, runs the lever arm D. As weight is put upon this plate it crowds the lever arm down and this forces the body of the plate up against the calcaneo-scaphoid joint, and so preserves the damaged internal arch.

The objection to this shape of plate is its unstable bearing, and the great difficulty of keeping it in its proper place. That

Whitman himself recognised this is shown by his last publication, in which he figures a plate considerably broader on the sole, and one that has a flange on the outer side of the foot.

During the summer of 1891 experiments were made by the writer in the Out-Patient Department of the Massachusetts General Hospital, and a shape of plate very similar to the plate last described was adopted.

Steel.—Lastly as to the material of the plate. As has been stated, the material used by Whitman in New York is hammered steel, which in addition is nickel-plated or japanned. But the plating soon wears off, and the steel exposed to the moisture of the foot rusts and breaks. This happens in six months or less. Besides, such plates are quite expensive, costing from three to six dollars apiece.

Aluminum. –The metal aluminum, besides costing about five dollars a plate, has proved too brittle to be of much service for adults. For children it answers well, where its lightness is a great gain. It is also very permanent.

Bell Metal.—For cheap plates for out-patient clinics some experiments were tried by Dr. Bullard. A mould was taken with Canton flannel and plaster in the Harrington method, which, without backing, was sent to the foundry and used as a core for a clay mould. Bell metal was used for the casting. It gives an excellent surface and resists corrosion well. So far as tested it was about as tough as the aluminum bronze, and cost only about seventy-five cents a plate. The greatest objection is in its weight, which somewhat exceeds the bronze, but for out-patients this is less serious than price; therefore, the plate seems to promise well.

Cast Steel.—A still cheaper plate was made from cast steel, smoothed on a wheel and nickel-plated. Its cost was only thirty-five cents; but as it is rougher than bell metal, and more liable to wear off and rust, it was not thought so good.

Rubber.—An attempt has been made by the writer to get a flat-foot plate of hard rubber. This substance combines many advantages. It is exceedingly light, which for women and children is a great point; it is uninjured by water or by the perspiration of the foot, and does not tarnish or soil the stocking. Moreover, it is not absolutely rigid, its slight amount of spring proving a great comfort to the wearer. The method of making was this: A shell of the desired shape is made of wax in the manner previously described; it is then greased and filled up on the back with plaster. When hard the wax is removed, leaving a negative cast. This is sent to the Davidson Rubber Company, who fill in the cast with a thin layer of sheet rubber, and vulcanise it at a temperature of 300° C. The price is one dollar and a half.

During autumn, upwards of thirty of these plates were put in use. The result has been only a partial success. For light women and for children the plate has answered most admirably. If made after the older patterns it proved strong enough for the heaviest patients; but when the outside was carried well up, the cross-strain was more than the rubber could be counted upon to stand when weighted by a heavy adult. Yet some few of the plates have even under these circumstances proved equal to the task. Further experiments are now being carried on in the hope of making the rubber plate still stronger.

In addition to the advantages already mentioned rubber has one more. By holding the plate for a moment to the flame, the shape can be altered and an absolute fit can thus be easily obtained.

Whatever form of plate is used, the good derived from it is strictly negative. It prevents the arch from further breaking down, but it does not directly build it up. To do this one must first build up the general physical condition, if it is run down; then by teaching the patient a proper walk, and requiring him daily to practice the form of gymnastics already referred to, we strive so to strengthen the muscles and ligaments that they can again perform their proper work unaided. This in ordinary cases requires from six to ten months, after which time the plate can safely be omitted. A good fitting shoe will thereafter be all that is required.

Unfortunately, all cases that come for treatment cannot be thus easily cured. Owing to the length of time that the process has been going on, the extensor and abductor muscles may be in such a state of contracture as to resist all our efforts to replace the foot in its normal position. Rest in bed and massage will, however, usually be sufficient if the difficulty is with the muscles alone. Still more serious is the case when the bones themselves have become much displaced and firmly held in their abnormal relations by the products of the low grade of inflammation which accompanies the breaking down of the arch.—*Boston Medical and Surgical Journal*, *November* 3, 1892, *pp.* 430, 431, 432, and *November* 10, 1892, *pp.* 447, 448, 449, 450.

53.—ON STERNO-MASTOID TORTICOLLIS.

By William Anderson, F.R.C.S.

At the present day we know a good deal about torticollis, but there is still a great deal that we have to learn. We have a mass of experience as to the phenomena and treatment of the affection, but its pathology is still involved in obscurity and

disputation. It is known that the characteristic deformity is seen at birth or very shortly afterwards, though there is still a lack of precise observation on this point, and there can be no doubt that in a considerable proportion of cases the condition has arisen during intra-uterine life. It is more common in girls than in boys, three or four times more frequent on the right side than on the left, and is almost invariably single. There have been four theories of causation framed to account for it, three dealing chiefly with cases of truly congenital wryneck and one touching only upon those in which the foundation is laid by an accident of parturition. One view attributes it to a simple arrest of development in the face and neck. A second traces it to a disease of the nerve centres affecting the side of the neck secondarily, but as the nature of the disease has not been explained the hypothesis is at least a very incomplete one. A third, and perhaps the oldest, view regards the shortening of the muscle as the result of a vicious position of the head of the fœtus *in utero*. A similar hypothesis has been offered in the case of club-foot and other deformities, but it appears very unsatisfactory; for if the mere attitude of a part during intra-uterine life could determine a permanent shortening of the muscles relaxed by the posture scarcely a joint in the body would be free from distortion at birth. A fourth explanation, advanced by Stromeyer, assigns as the essential cause a laceration of the muscle during parturition, an accident that is said to be particularly liable to occur—although we do not know in what proportion of cases—in breech and foot presentations, in which the parts about the neck are subjected to a good deal of stretching in the course of delivery. This theory is very plausible, but the evidence connecting the two conditions is still far from complete. The out-patient room has afforded us many examples of the so-called congenital tumours of the sterno-mastoid, which were formerly supposed to be of syphilitic origin, but are now, and probably with justice, believed to be due to an effusion of blood in the sheath of the muscle and consequent upon a rupture of some portion of the muscular belly. Given such an accident, a permanent defect of the muscle appears very probable; but few, if any, of these cases have actually been traced on to a sequent deformity, and Jeannel and Petersen have brought forward arguments to show that such an injury never leads to wryneck. Moreover the investigation of the history of a case of torticollis seldom if ever educes any clear account of an antecedent sterno-mastoid tumour. At present we can only believe that a very small proportion of the examples are due to this accident.

A few words may be said as to the comparatively rare cases of acquired sterno-mastoid torticollis. Syphilitic myositis

undoubtedly explains a few. Tumour of the muscle may in like manner cause more or less distortion of the neck, as in the case of spindle-celled sarcoma that recently left the hospital. There the entire muscle was excised with the growth and the wryneck disappeared, and it is worthy of note that the unbalanced action of the opposite muscle has not set up any deformity. Traumatic injuries to the muscle may in like manner induce torticollis, but the cases are very rare.

The treatment of sterno-mastoid torticollis is conducted upon principles similar to those which guide us in dealing with other myopathic deformities. In the slighter cases, if observed sufficiently early, a cure may often be effected without operation by persevering manipulation of the head aided by the use of a suitable apparatus, but the majority of examples brought under the notice of the surgeon require the section of the affected muscle or its tendon.

The section of the muscular belly has been revived in recent years and many surgeons have spoken very highly of the results. I have performed it only on one occasion, and although the experiment was perfectly successful and the immediate effect was decidedly greater than after section of the tendon I have not cared to repeat it. The almost immediate relation of the carotid sheath to the deep surface of the muscle increases the danger and difficulty of the operation; a scar is left in an exposed situation and the portion of the muscle below the line of section will in all probability undergo atrophy in consequence of the section of its nerve. If this plan be set aside only one other seat of operation remains, the tendons of origin, because the division of the muscle near the base of the skull, although possible and not dangerous, would involve a large wound and would offer no compensating advantages.

In the milder cases of wryneck the sternal head alone requires division, and for this there can be no doubt that the subcutaneous operation as advised by Dupuytren is the best. It leaves only a minute scar, and if it be recollected that this portion of the tendon is attached to the front of the sternum well below the upper border of the bone and that it is isolated by a complete fascial sheath it will be seen that its division is both safe and easy. An open wound here could give no advantage.

When the clavicular head is also involved the question of operation becomes more complicated. It will be remembered that this tendon arises from the upper border of the inner third of the clavicle, while the muscular fibres connected with it are divided into two separate bundles, one passing to the mastoid process (cleido-mastoid), the other to the occipital bone (cleido-occipitalis). Immediately behind it is a well-marked cellular interspace containing some fat and connective tissue, with the

anterior jugular vein passing to its termination in the external jugular trunk and a small branch of artery, usually from the supra-scapular, which eventually pierces the interval between the two heads of the muscle and supplies integumental structures. The posterior boundary of the space is formed by a sheet of fascia enclosing the sterno-hyoid and omo-hyoid and filling up the triangle formed between these two muscles and the clavicle, to which the fascia is attached below. There is thus a kind of wall separating the seat of operation from the deep cervical and mediastinal spaces and from the great vessels and nerves of the neck, the inner portion of this being both muscular and fascial, while the outer part is composed of fascia only. At the outer border of the tendon is the external jugular vein, receiving the anterior jugular on the inner side and the transversalis humeri and transversalis colli veins on the outer side before piercing the deep fascial wall to enter the subclavian vein. From this it will be seen that the danger of wounding the large vessels at the root of the neck is very small, but both the anterior and external jugular are exposed to injury, and it is quite possible that the bleeding from either might be alarming. The small artery would probably give little trouble.

In dealing with the clavicular head the surgeon has the choice of two plans of operation, by the open method and by subcutaneous section. The open method has the claim of antiquity, but there is no doubt that it was rightly abandoned in favour of its younger rival so long as the wound was liable to infection. Antiseptic surgery has now, however, placed it upon a different footing, and many surgeons, including Volkmann, Heinecke, and Billroth, have given it their preference because it allows the immediate division of the fascial tissues which resist extension.

The subcutaneous operation is usually practised by making a puncture at the inner or outer border of the clavicular head and introducing a blunt-pointed tenotome, the edge of which is turned outwards towards the skin. The section is then made in the usual manner with a careful sawing motion, the finger being laid lightly on the skin opposite the point of operation. The sensation of yielding is very obvious and when the last fibres are cut a distinct separation of the parts is at once apparent. The amount of gain, however, is often rather disappointing because the fascial and other structures behind the muscle have undergone adaptive changes which enable them for a time to offer more or less resistance to extension; but these tissues do not offer any permanent opposition and the cure may always be safely completed by judicious after-treatment. The internal puncture is believed to be safer than the external, as the anterior and external jugular veins are more out of harm's way than when the knife is introduced at the outer border of the muscle between the

external jugular vein and the tendon. I have, however, adopted a modification of the latter plan, making a vertical incision of about half an inch in length over the outer border and dissecting down until the shining fibres of the tendon are exposed. The blunt-pointed knife may then be passed close to the deep surface of the tendon, preceded or not by a director, and the risk of wounding either of the veins is thus reduced to a minimum. The external jugular can scarcely be hurt, and should the anterior jugular be punctured the bleeding may be easily arrested by a firmly applied compress.

In comparing the open and subcutaneous methods we must admit that for safety, precision and completeness the former is the better, but it has the disadvantage of leaving a scar that might be very objectionable in after years in the case of a girl. It would hence perhaps be better to preserve the subcutaneous plan for female patients—in whom the vessels are smaller and the risks of hemorrhage less—and practice the open operation upon boys.

The operation completed and the wound dressed, the important question of after-treatment arises, for by no method of section can the deformity be immediately righted, and we must always be dependent for the complete restoration of symmetry upon measures which stretch the structures that our operation has left untouched—the muscles, ligaments and fasciæ that have adapted themselves to the contracted position of the neck. As a rule it is desirable to leave the parts undisturbed and without any extension apparatus for a week after the tenotomy, and then the completion of the work of cure may be undertaken and carried out perseveringly for two or three months. Fortunately there are simpler means which achieve the desired end, and of these the simplest and the best is probably that recommended by Little: "Apply a long strip of adhesive plaster around the forehead and occiput, the maintenance in position being better secured by a bandage passed over the vertex and beneath the chin, the two being pinned together where the one passes over the other above the ears. Next attach around the waist a broader band of adhesive plaster, not so tight as to interfere with the movement of the ribs; over this a turn or two of calico roller bandage; the two should be fastened together by a stitch here and there. The surgeon has now two circular bandages, the one around the forehead and the other around the waist, which are not likely to slip if properly applied. He should then sew a strip of tape to the head bandage directly above the ear of the unaffected side and carry it diagonally across the trunk to the opposite side of the waist bandage and there pin it. By this means the left mastoid process (we are speaking of wryneck caused by contraction of the right sterno-mastoid) will be drawn towards the

right sterno-clavicular articulation, the original wryneck will be removed and the chin brought to the median line, or in young and flexible subjects even across it towards the affected side, constituting a wryneck in the opposite direction." This I have found so satisfactory that I have in recent years adopted only one other method—that in which apparatus of all kinds is discarded; and in suitable cases—that is to say, in patients who are old enough and have the will and power to assist in their own cure—the latter plan, which is followed by Mr. Edmund Owen and others, is very successful. The patient is directed to carry a weight in the hand of the affected side in order to bring down the clavicle, and to practice sedulously the rotation of the face towards the right shoulder (in right side contraction), with the ear downwards towards the left shoulder and the neck extended, the exercises being tried before a mirror and repeated as often as possible. At night he is advised to sleep on the affected side with the head resting upon a high pillow. In addition, passive manipulation is of great value and should be carried out daily by the surgeon or an assistant, the movements always aiming at the widest possible separation between the mastoid process and sterno-clavicular joint of the affected side. By these means we may always calculate upon restoring the neck to its proper line except in cases in which the operation has been delayed to a relatively advanced age—that is, twenty or upwards—and even in these a very great improvement may be looked for. The asymetry of face, unfortunately, is not amenable to treatment, but it is certainly less conspicuous after the neck distortion has been relieved.—*The Lancet, January* 1, 1893, *p.* 10.

54.—ON THE METHOD OF ESMARCH AND BIER FOR THE CONSERVATIVE TREATMENT OF TUBERCULOUS JOINTS.

By Herbert W. Page, M.A. (Cantab), Surgeon to St. Mary's Hospital.

In September last I had the good fortune to make a visit to the hospital at Kiel in company with Professor Esmarch and his assistant, Dr. Bier, and was shown a series of cases illustrating a new method of treating local tuberculous affections which I wish to bring to the notice of English surgeons.

A short account of the plan from the pen of Dr. Bier had indeed already appeared in the supplement of No. 32 of the *Centralblatt für Chirurgie* of this year, which contains a report

of the proceedings of the twenty-first Congress of German Surgeons held in June; but it escaped my notice, as doubtless it has escaped that of other surgeons in this country. The treatment advocated is, however, of so much interest and apparently of such value that I deem it right to record this notice of it now, even though I have myself had no sufficient opportunity of putting it into practice. The original paper of Dr. Bier is entitled "A New Method for the Conservative Treatment of Joint Tuberculosis," and in it he says that more than twenty cases had been treated by continuous passive hyperæmia (dauernder passiver hyperämie). The old observation that passive congestion of the lungs (Stauungslunge) provided, or seemed to provide, immunity against tubercular infection had led to the suggestion that purposely induced congestion of a part might have a like effect. Accordingly the idea had been put into practice by the following simple procedure, much after the manner of Helferich, for the treatment of ununited fractures. If, for example, the part affected is an elbow-joint, the fingers, hand and arm are bandaged up to a point immediately below the articulation, while directly above it the arm is next encircled with an inch-wide elastic band sufficiently tight to impede but not arrest the circulation, and so presently induce a passive congestion and swelling of the intervening zone. It is necessary, he says, to protect the skin from direct pressure of the elastic band by a piece of lint or bandage beneath it, and the exact size of its application must be changed from day to day. In most of the cases where this plan had been carried out in Professor Esmarch's clinic marked and rapid improvement had set in, and in no instance had any harm ensued. Dr. Bier says that he had also induced active hyperæmia, but without good result. He does not state precisely how this was done.

This plan of treatment by passive congestion was that which I saw in the hospital at Kiel. To take a couple of instances which recur to my mind: there was a case of tuberculous synovitis of the elbow in a young woman. Under the method of bandaging described the whole joint area was of a reddish-purple, congested appearance. Painful and starting before the treatment had been begun, the joint was now free from pain, even though no attempt was being made to keep the part at rest. In fact, I was assured that splints were wholly unnecessary, and that the limb might be used as much as the circumstances of its imprisonment in bandages would allow. Although the method of treatment is somewhat painful for a day or two at first, the part is soon free from discomfort of any kind: manipulation in this particular instance caused no pain, and the patient said the arm was very much better. Her complete recovery was expected. Not less striking was a case of tuberculous ulceration of skin due

to inoculation. A young man had used milk to remove old tattoo marks. I did not learn the exact method he had adopted; but there seems to be a belief that milk can eradicate tattoo marks, by rubbing out the black with white. At any rate, in this patient the sites of the tattoos, three or four in number, immediately above the left wrist were now occupied by tuberculous lupoid ulcers, and I was informed that investigation had proved that the milk the man had used was taken from an infected cow. Suffice it to say that there were now sores of unquestionably tuberculous lupoid aspect, and one of them, of the size of a florin, had healed entirely under the method described and without any local application. This patient came to the hospital every morning to have his fingers and hand bandaged and the position of the encircling rubber band changed. Amongst other cases being treated in the same way were a tuberculous swelling of knee-joint and a tuberculous epididymitis, both of which I was assured were notably improving. The plan was said to be suitable for local tuberculosis of the skin and for tuberculous affections of synovial membranes, but not for disease of cartilage or bone. For the treatment of many other cases it is obviously inapplicable.

I have thus described what I saw, and make no apology for a communication without experience of my own, feeling that anything new in the clinical work of a surgeon so illustrious as Professor Esmarch of Kiel cannot fail to be of interest to many besides myself. This plan of treatment will at any rate give occasion for speculation and thought, and certainly for much scepticism also. When the treatment of tuberculous affections by the injection of Professor Koch's tuberculin was being tried, it was often remarked that in the local inflammatory reactions probably lay any good which followed. Mr. Hutchinson recurs to the subject in a short paper on the "Benefits accruing from Erysipelas," in the last number of his Archives, where, after speaking of the benefits which accrue to lupus vulgaris from attacks of erysipelas as matters of frequent and general observation, he goes on to say:—"The local effects of Koch's treatment, when good reaction was obtained, were not dissimilar from mild erysipelas, and it seems possible that their beneficial results may have been due simply to the febrile disturbance evoked." The plan of treatment here described, as seen at Kiel, brings about a local disturbance not altogether unlike the local disturbances induced by Professor Koch's inoculation—disturbances which seem to show that the quantitative and qualitative alterations in the blood and blood stream which we know by the name of inflammation may have an influence directly antagonistic to the growth and multiplication of micro-organisms. Comparatively harmless when circulating in the

blood current, their opportunity comes when they have made their way out of it or are arrested in it, and the flushing of a part with blood in the inflammatory process may have its good effects not so much from flushing and washing alone as from the fact that living, fluid, healthy blood, is itself the best protective against the growth of living organisms foreign to their blood. More blood is wanted for the purpose of protection than the natural rate and character of the circulation provide, and the artificial increase and delay of it in the neighbourhood where the organisms have made a lodgment by the method of Professor Esmarch and Dr. Bier may bring just that amount of extra help which the tissues of the part require successfully to overcome the tubercle bacilli and put an end to the consequences which their presence entails.

My object, however, is not to speculate on the *rationale* of the plan, but to ask English surgeons to try it, that haply they may find in it, as at Kiel it is said has already been found, an effective means for dealing with local tuberculous disease.—*The Lancet*, *November* 19, 1892, *p.* 1157.

ALIMENTARY CANAL.

55.—ON THE TREATMENT OF GANGRENOUS HERNIA.

By J. Ransohoff, M.D., F.R.C.S., Professor of Clinical Surgery in the Medical College of Ohio.

[Dr. Ransohoff concludes an interesting paper on the subject as follows:]

There is hardly a subject in surgery concerning which statistics are so much at variance as are those relating to gangrenous hernia. According to Korte of one hundred and eleven cases treated by enterostomy eleven ended fatally. Herman (quoted by Haenel) mentions eighty-three cases with seven deaths. On the other hand Weil reports fifteen cases with thirteen deaths. Benno Schmidt places the mortality at 85·5 per cent. for the formation of an artificial anus as against 71·1 per cent. for primary resection.

F. A. Southam, surgeon to the Manchester Royal Infirmary, recently reports eighty-five cases of herniotomy with nine cases of gangrene. All of the latter died. In six an artificial anus was made; in three primary excision.

If statistics are of any value in solving the relative merits of enterostomy and primary excision, it is evident that the reports of scattered cases are far less weighty than such from a few and skilled operators and from hospital records where nothing is concealed. Such a tabulation has recently been made by Mickulicz from seven large clinics of Germany and Switzerland. Of one hundred and sixty-eight cases of gangrenous hernia one hundred and nine died. Of ninety-four in which an artificial anus was made seventy-two died; mortality, seventy-six per cent. Of sixty-eight primary excisions thirty-two or forty-seven one-tenth per cent. died. Of six intermediary resections five died. It would appear from this that the mortality of primary excision is very much less than that of the lesser operation. But this can be accounted for by the certainty that the latter was often used as a last measure in conditions approaching collapse and therefore precluding the major operation.

The advantages of primary resection are patent. Its advantages are, in the time required for its performance and in the danger of peritonitis from imperfect technique. In a measure both can be overcome. The first of these is probably grossly exaggerated. With separation of the mesentery as indicated in the fourth case and its closure by suture to be followed by the continuous Lembert suture or by lateral anastomosis, not more than half an hour at most should be required for the enterorraphy. Complicated clamps, a separate row of stitches for mucous and serous tunics, interrupted sutures unnecessarily waste time. Where the continuous suture is used and appears weak at points a few supplementary stitches can easily be taken. Suturing the mesentery brings the intestinal ends naturally together and gives assurance that the most treacherous part of the suture, that near the mesentery, can be properly applied. The second danger is from injudicious selection of the lines for suture. As elsewhere in gangrenous processes the danger lies rather in removing too little than too much. If Kocher excised five and Kœberle six feet of intestine, a few inches more or less cannot be important. In acute cases where the calibre of the gut has not been long occluded and koproostasis is little if at all developed, an inch or two on each side of the constriction groove will probably bring the suture line in healthy tissue. Where the mesentery has not been included in the strangulation, the same favourable conditions may be expected. Where however much dilatation of the afferent gut exists, its thorough evacuation should precede the enterorraphy. After hernia, as after laparotomy for obstruction, it is fatal to return a distended gut to the abdomen. The second danger, that of septic infection of the peritoneum, can in a large measure be reduced by thorough irrigation of the sac before suturing; by careful handling of the

gangrenous gut without the wound meanwhile protecting the peritoneum by gauze packing. Finally, the sutured intestine should be left just within the abdominal cavity and a radical cure should not be attempted. Mickulicz, whose success surpasses that of any other operator—twenty-one cases with fourteen recoveries—insists on the open treatment of these cases. Should fecal extravasation ensue from defective suture or other cause, it would naturally turn towards the wound whereby the danger of general peritonitis would be largely averted. For from two to five days after the operation the sutured intestine remains where it is placed within the abdomen, and after that length of time the development of peritonitis is not probable. To hasten the process of wound repair, deep and superficial sutures might be drawn through the wound margins and kept over the gauze packing, to be tightened without anæsthesia after the danger line has been passed.

Between the extreme measures considered, others looking towards a compromise have recently been brought forward by a number of surgeons. Among these are the intermediary excision and suture of Riedel. The artificial anus is established in the usual way. After twenty-four or forty-eight hours the edges of the intestine are vivified and united by suture. In 1882 Bouilly suggested excision and suture, the latter being purposely made imperfect at one point to guide the fecal extravasation. To avert the danger from imperfect suture, Hahn follows the kelotomy with a median laparotomy. Through this wound he brings the divided ends of the bowel, thoroughly protecting the abdomen against infection by packing them in gauze. When the suture is completed the closed knuckle is kept in the wound and gauze splints until union is assured. The competency of the suture is certain after twenty-four hours, when the bowel is returned to the abdomen and the external wound closed. It is difficult to understand why the same procedure could not be carried out in the inguinal herniotomy wound. Nevertheless Hahn has had two successes with it, and in a third, reported by Kutschera, the result was equally satisfactory.

To overcome the danger from death from inanition Helferich has recently combined enterostomy with an intestinal anastomosis above the constriction furrows. By this method two courses are open to the intestinal circulation and the closure of the artificial anus is greatly facilitated. The operation was done in two cases, one of which was successful, the fecal fistula closing spontaneously.

There is yet another class of cases in which the condition of the bowel is such that whereas gangrene is not yet present, it might through subsequent necrosis cause death if returned to the abdomen. Such a knuckle is a menace. Who has not seen it? Especially if operating by light both artificial and bad.

Bowel that is not at all doubtful in appearance will at times repay the trust placed in it by a perforation. Among ninety-six deaths after herniotomy, it was in twenty-six cases the result of returning intestine to the abdomen which subsequently perforated. In Hagedorn's clinic three deaths out of fifteen resulted in the same way. To return doubtful intestine is unnecessarily jeopardising life. To treat such intestine as radically as bowel already gangrenous is an extreme measure, not to be advocated. Fortunately the intestine can be retained in the wound for a number of days in gauze packing or by sutures. When its viability has been established it is an easy matter to return it to the abdomen. Graefe recently reported a successful case in which the intestine was so retained for five days before replacing it. Should the dread of adhesions be feared, the intestine might be retained just within the abdomen by fixation sutures or by gauze. In the event of gangrene the fecal extravasation would course towards the external wound.—*Annals of Surgery, October*, 1892, *p.* 347.

56.—ON THE RADICAL CURE OF FEMORAL HERNIA.

By W. Watson Cheyne, F.R.C.S., Professor of Surgery in King's College.

Although the radical cure of inguinal hernia now leaves little to be desired as regards both immediate and permanent results, this is by no means the case with any of the methods which have as yet been described for the treatment of femoral hernia. Practically all the methods for the closure of the femoral canal consist, after tucking up the sac, in the attempt to approximate Poupart's ligament and the fascia over the pectineus. Now Poupart's ligament is a tense band and when stitched down to the pectineal fascia one of two things happens. In the first place, if it keeps down the tension is so great that the stitch very soon cuts its way through the ligament; in the second place, what usually has happened in my experience is that if the pectineal fascia alone is taken up in the stitch it is at once torn off the pectineus and carried forwards to Poupart's ligament, and the stitch soon cuts through the fascia. The result, in my experience, has not been at all certain and not to be compared to the result after the radical operation for inguinal hernia. On thinking over the matter, it seemed to me that the only satisfactory plan would be to turn in some tissue which would fill the femoral canal and at the same time not be subject to any

tension. On looking about for material to form a flap to turn into the canal the only available structure seemed to me to be the pectineus muscle. I at first thought of turning up a flap of the pectineal fascia, but it is often very thin, and the cases in which it had been drawn forwards to Poupart's ligament were not on the whole satisfactory, and therefore I came to the decision to turn up a flap of the pectineus muscle itself. Curiously enough, although at the time that I worked out the operation on the dead body (now more than a year ago), and, indeed, at the time I put it in practice, I could find no indication that this idea had occurred to anyone else. I find in looking over the recent numbers of the *Centralblatt für Chirurgie* that on Aug. 28th, Salzer of Utrecht describes a method of turning up the pectineal fascia which he put into practice about the same time that my cases occurred, the guiding idea of which is the same as mine. He, however, uses the pectineal fascia, which I had rejected for the reasons I have mentioned, and which I feel sure will not prove to be satisfactory.

My plan of operating will be evident from the accompanying engravings. After the hernia has been reduced the neck of the sac is ligatured and stitched to the abdominal wall (A in Figs. 1 and 2). A flap is then marked out in the pectineus muscle of sufficient size to fill up the crural canal without any tension, and including the whole thickness of the muscle. The incision in the muscle begins at the inner wall of the crural canal, runs for a short distance parallel to Poupart's ligament and then curves downwards, outwards and upwards (see dotted line in Fig. 1). At the two lowest angles of the flap stitches are passed and tied so as to get a good hold (B and C in Fig. 1) of the muscle. The flap is then peeled up from the bone and the stitches (B and C) are passed through the abdominal wall, B above Poupart's ligament and C just at it (see Fig. 2). The result is that the femoral canal is completely filled up with a thick mass of muscle, which soon unites to the sides of the canal; and although its muscular elements may atrophy, a dense mass of fibrous tissue will be left behind. The stitches which I used were Chinese silk of medium thickness. I have operated in two cases by this method and the results are so far perfect; the region of the crural canal remains a hard mass, without the slightest impulse on coughing, and the patient does not wear a truss. I may in a few words mention the notes of these two cases.

Case 1.—This patient, a female, aged forty-seven, was admitted to King's College Hospital on June 20th, 1892. She first noticed the swelling in the right groin three years previously, and it has never disappeared; in fact, on the whole, it has increased in size. For the last three months it has been getting

much larger and very painful. She also suffers from uterine trouble and ruptured perineum. In the right groin there is a large, elastic, smooth swelling about the size of a large orange passing upwards and outwards from the region of the crural canal and in appearance resembling a femoral hernia. It is very tender and fluctuates, and the skin is reddened over it; there is no impulse on coughing; no signs of strangulation. Various opinions were expressed as to the nature of this swelling, but

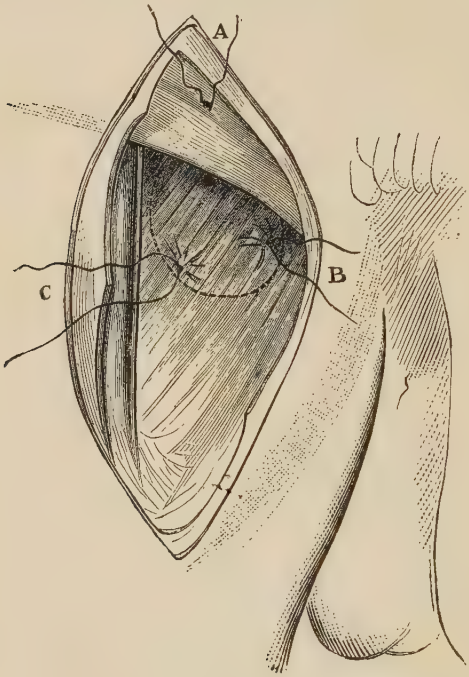


Fig. 1.

I concluded that it was an altered sac of a femoral hernia. On June 21st I therefore made the ordinary incision for femoral hernia and exposed and opened the sac, which I found to contain straw-coloured fluid, the wall being covered with layers of altered blood-clot. On clearing it out it proved, as I had thought, to be an old femoral sac, the communication with the abdomen having been obliterated at the upper part of the crural

canal. I then ligatured the neck as usual, cut off the sack and stitched the neck to the abdominal wall. The canal allowed the easy passage of two fingers through it, and this I closed with the pectineal flap as before described. There is nothing to remark about the after-progress of the case. The wound healed by first intention, except at the middle, where a little glairy fluid could be squeezed out at the first dressing. She was kept in bed for about ten days after the wound had healed, and was

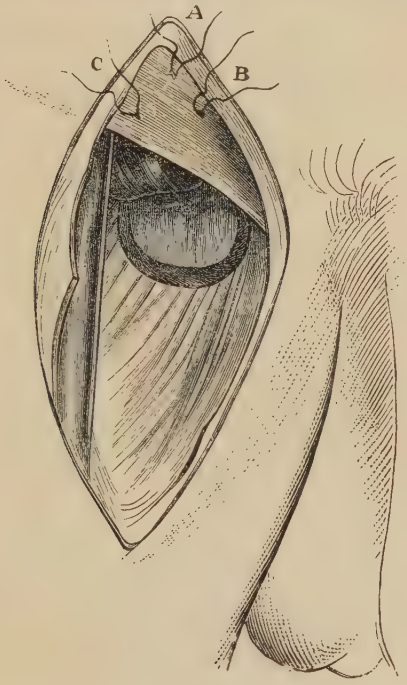


Fig. 2.

sent out on July 21st. At that time there was a hard mass to be felt in the neighbourhood of the crural canal and no impulse on coughing. She was told to wear a bandage for a few weeks, and when seen on Oct. 7th the repair seemed perfect and there was no impulse on coughing.

Case 2.—A female aged forty-five. She has suffered from right femoral hernia for eight years, and wears trusses, but the

hernia is always coming down and getting obstructed, and then there is considerable difficulty in returning it. On examination I found a femoral hernia about the size of an egg on the right side, which could only be partially reduced. On June 28th a similar operation was performed to that already described. The wound healed without trouble and she was discharged on July 21st. At that time the parts were quite hard and there was not the slightest impulse on coughing, and when I saw her a few days ago her condition was perfect.—*The Lancet, Nov.* 5, 1892, *p.* 1039.

57.—A NEW METHOD FOR THE RADICAL CURE OF HERNIA.

By Theodor Kocher, M.D., Professor of Surgery in the University of Bern.

[At the end of an important contribution to the literature of the Radical Cure of Hernia, Kocher gives the following description of a method by means of which, when the wound healed well, he was able to obtain almost perfect results. In seventy-six cases there were only two recurrences, which were sufficiently explained by the abnormal size of the hernias. He designates it as the Canal-Suture method. Before proceeding to the description of his method, the author states the conditions necessary for the attaining a positive radical cure to be—1, perfect asepsis; 2, high ligation of the neck of the hernial sac; and 3, closing of the hernial canal.]

We wish to describe a new procedure for the radical operation for hernia, which we perfected, and, after sufficient study, performed upon a series of cases and demonstrated before a number of surgeons. For it appears from the not yet completed observations of our final results by Dr. Leuw, that the method which we had employed has not fulfilled all our cherished hopes. This procedure, which, in the literature known to us, has no analogue, is best explained by the accompanying cuts, which were made after drawings taken from nature during one of our operations. The method suffices to make tense the peritoneum in the region of the inguinal canal, and to fix it against the anterior abdominal wall. This is accomplished after the same manner as in the methods of Barker, Ball, and Macewen, with the difference that the stretching of the peritoneum is done in a direction opposite to the direction of the inguinal canal and the course of the hernia; and that the fixation of the peritoneum is done much more firmly, and in a more permanent manner.

The skin and superficial fascia are divided over the inguinal canal and laterally outwards in the direction of Poupart's ligament (Fig. 1), and the sup. epigastric artery ligated. At the anterior inguinal ring only the thin fascia of Cooper, which, as a continuation of the tense aponeurosis of the external oblique muscle, covers the spermatic cord, the cremasteric loops and the tunica vaginalis communis, which is especially well developed in hernia, are also divided. The structures of the spermatic cord

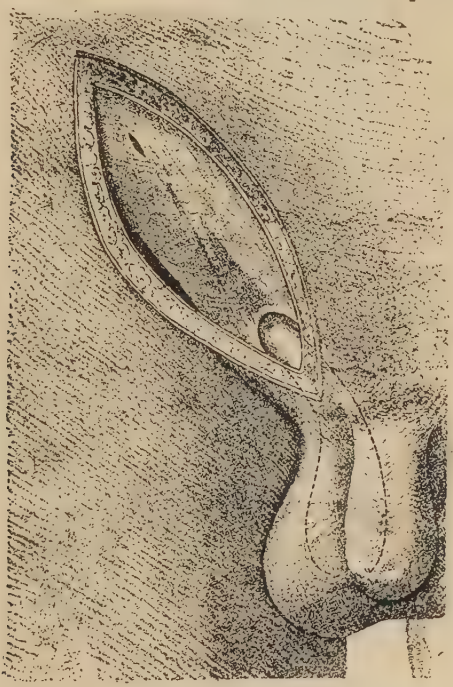


FIG. 1. The primary incision in Kocher's method for the radical cure of hernia.

are now separated, in which, by holding them towards the light, the border of a very thin hernial sac can be recognised. This is then carefully dissected and isolated from the structures of the cord until it can be strongly drawn down and its pedicle exposed.

The index finger of the left hand is now introduced into the inguinal canal; and laterally from the posterior inguinal ring,

a small opening is made through the aponeurosis of the external oblique muscle (see Fig 1). A slender pair of artery forceps is passed through this opening and through the lower muscular fibres of the internal oblique and transversalis muscles, following the left index finger as it is withdrawn, through the inguinal canal and finally out of the external inguinal opening (see Fig. 2).

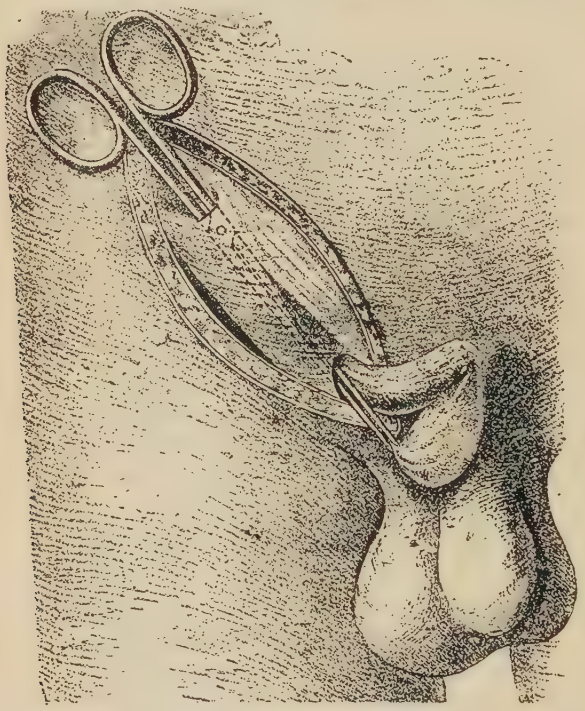


FIG. 2. Forceps introduced along inguinal canal and grasping the sac at its lower end.

With these the isolated hernial sac is grasped and drawn through the inguinal canal and through the narrow opening in its anterior wall—that is in a lateral direction from its upper end.

The hernial sac now hangs through a narrow opening above Poupart's ligament (Fig. 3). It is drawn out as much as possible, and then, as Heliodorus did, and as Ball has recently advised, it is energetically twisted. The sac is, however, not removed, but

strongly drawn down and laid over the outer surface of the aponeurosis of the external oblique muscle against the external inguinal ring, and in the direction of the inguinal canal (Fig. 4).

By this tension on the sac, as is shown in Fig. 4, the anterior wall of the unopened inguinal canal, and especially the tense aponeurosis of the external oblique muscle, are pressed inwards and backwards into a gutter.

As the twisted sac lies tensely stretched in this manner, beginning at the upper and outer extremity, deep sutures are applied. The sutures are passed above the twisted sac, through

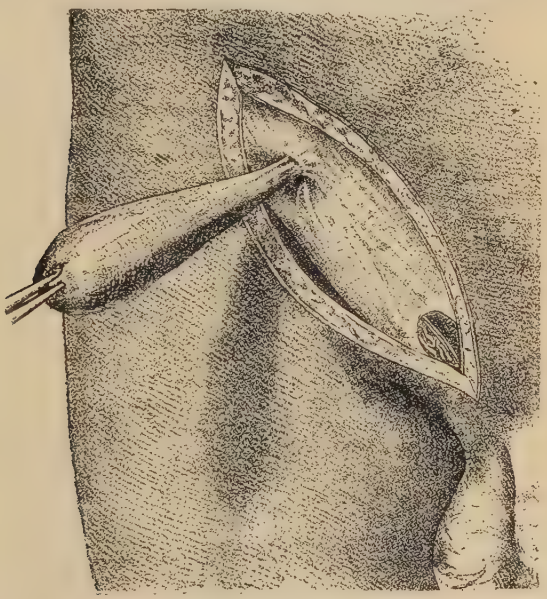


Fig. 3. Sac drawn out through lateral opening in external oblique aponeurosis.

the oblique fibres of the aponeurosis of the external oblique muscle and the underlying muscle fibres of the external oblique and transversalis, through the hernial sac itself and including the ligament of Poupart beneath it. These sutures—five to seven or more—bring together also the pillars of the anterior ring, to which the lower end of the hernial sac is fastened. In case of a long sac, all that extends below the external ring is cut away.

In this manner a firm and solid pad or roll is secured over the entire length of the inguinal canal, which forms a better dam

against the pressure of the intestines than an implanted patch of skin or periosteum. Furthermore, the peritoneum is drawn laterally on the stretch and firmly pressed to the abdominal wall in the region of the posterior inguinal ring, where it is held by the torsion of the sac and the deep sutures. The operation is more certain when the upper suture can be deeply applied laterally from the place of entrance of the spermatic cord into the abdominal wall.

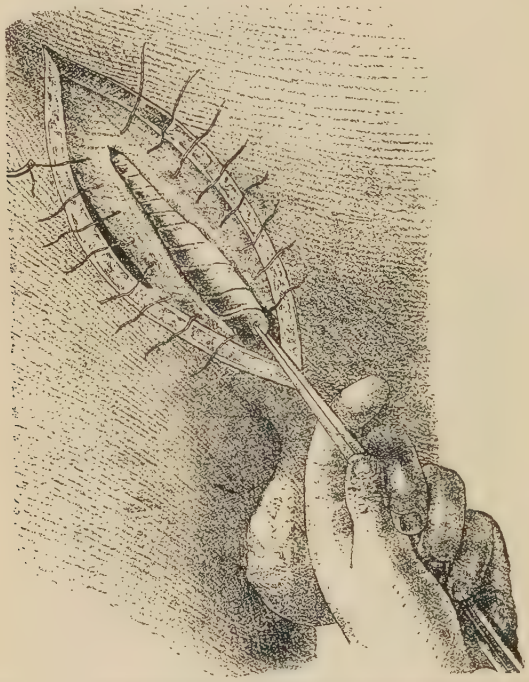


FIG. 4. Sac twisted and laid down external to the aponeurosis covering the inguinal canal.

We have employed the same method in cases of femoral hernial in this manner: The sac, having been completely isolated and twisted as strongly as possible, is drawn through a small opening above Poupart's ligament, and, in the manner above described, included in the sutures which are passed through the pectineal fascia and Poupart's ligament for the purpose of closing the femoral ring.—*Annals of Surgery, December*, 1892, *p.* 522.

58.—RADICAL CURE OF HERNIA: A NEW METHOD.

By Henry O'Hara, F.R.C.S.I., Senior Surgeon to the Alfred Hospital, Melbourne.

Since September, 1888, I have performed an operation for the cure of inguinal hernia in males sixty times; in every case complete recovery followed, and in no instance has there been necessity for the re-employment of a truss or other artificial abdominal support. The ages of the patients ranged from 14 months to 73 years.

No difference of opinion exists with regard to the first step of the operation—that of exposing the sac, an incision being made, as for herniotomy. Banks, having separated the vas deferens, applies a ligature round the neck of the sac as high up as possible, and dissects out and removes the fundus. Having pushed the ligatured portion up the inguinal canal, he trusts to silver wires to hold together the pillars of the ring. Ball twists the neck of the sac, and secures it between the pillars of the ring by sutures passed through these structures. Macewen uses the whole sac to plug the internal opening. Barker divides the neck of the sac after having ligatured it high up, but does not dissect out the fundus. He pulls the stump by means of the ligature that he has already placed round it to the internal opening, and, after having brought the ligatures through the internal pillars, from within outwards, he manages, by tying them, to approximate the sides of the canal.

After a very varied experience, I have come to the conclusion that even Mr. Barker's operation, which, to my mind, is the best of those quoted, can be improved upon. My objections to the methods advocated by other surgeons lie, first, in their leaving the stump in the canal; and secondly, on their relying on ligatures to hold its margins together, feeling convinced that where a cure is effected it is the result of plastic inflammation and its resulting adhesions. I cannot see any advantage to be gained by dissecting out the fundus of the sac. In congenital herniæ it must be allowed to remain to form a tunica vaginalis, and in the acquired herniæ it has generally developed so many adhesions that its dislodgment, in my opinion, causes an unnecessary amount of disturbance to the tunica vaginalis and its contents, leading, in many cases, to severe orchitis.

I have adopted a method of keeping the stump at least two inches from the inner ring. Having freed the vas deferens, a long, strong, carbolised gut or sterilised silk ligature is tied round the neck of the sac; a second ligature of finer material is placed about a quarter of an inch lower down, and the neck of the sac divided between the two. I then introduce the index

finger of my left hand as far as possible up the inguinal canal, anterior to the peritoneum, and having satisfied myself that no important structures lie between the tip of it and the abdominal parietes, I make an incision—through the skin only—from without, at a point corresponding with the tip of the finger on the inside ; and this is the point I select for fixing the stump, which is in most cases from two to two and a-half inches above the internal abdominal ring. A guarded needle threaded with one of the long sutures attached to the neck of the sac is now passed up the canal on the finger to the point selected for fixing the stump, and driven through the parietes. The needle, having been unthreaded, is withdrawn, to be threaded again with the other end of the ligature, and is reintroduced up the canal and brought out at a little distance from the first. The two ligatures are then firmly tied, the ends cut off, and the sac is thus secured. A decalcified bone drainage-tube is now introduced into the canal, and the margins are laced together over it with silkworm gut ligatures. The superficial wound is brought together with horse-hair, and an antiseptic wool pad applied with a spica bandage. The plastic inflammation resulting from this procedure causes a sufficient narrowing of the canal to prevent the recurrence of a hernia. The neck of the sack which had moulded itself to the canal is removed to a safe distance, and cannot encroach upon the orifice during the process of narrowing, and new structures overlie the internal opening. The bone drainage-tube, lying as it does alongside of the vas deferens, prevents any undue pressure being made upon it when the margins of the canal are laced together, and its pressure causes an aseptic irritation favouring a mild inflammatory process, and at the same time acting as a drain should drainage be necessary.

With regard to the age at which it is advisable to operate, I am of opinion that when the rupture is so large as to affect the child's health, or that a truss cannot be borne, the operation may be safely undertaken at twelve months.—*British Medical Journal, December* 10, 1892, *p.* 1279.

59.—OBSERVATIONS ON SUBMAXILLARY CANCER AND ITS TREATMENT.

By Alexander Ogston, M.C., Regius Professor of Surgery in the University of Aberdeen.

During the past eight years I have chanced to meet with an unusual number of cases of cancerous disease in the submaxillary region, and have found a plan of treating them so successful that I think it worthy of the attention of operating surgeons.

Cancer of the tongue or lips, if laterally situated, usually spreads to the absorbent gland that lies in the submaxillary region, imbedded in the submaxillary salivary gland, about an inch and a quarter in front the angle of the jaw, and of an inch below the base. In this situation recurrence of cancer is also usual after it has been removed by operation from the lips or tongue. (Central cancer of the lip generally extends to, or recurs in, the sublingual glands, just behind the symphysis of the jaw, but this condition does not belong to the class of cases here dealt with.) The appearance of the disease in the submaxillary region shows itself by a fulness, due to an egg-shaped tumour, increasing in size from that of a small hazel nut to that of a plum. It is at first movable, and its mobility and shape can best be made out by the surgeon putting the thumb of his hand which belongs to the opposite side from the disease down into the floor of the patient's mouth between tongue and jaw, and the fingers of that hand externally over the submaxillary region, when by this double palpation the condition can be accurately made out.

As the disease progresses the gland enlarges in all directions, but chiefly upwards towards the base of the jaw, which it approaches so closely that by the time it has reached the size of a large cherry it is so intimately connected with the jaw that, though it may be movable upon it, it cannot be completely removed by operation unless a piece of the jaw be taken too. The gland speedily becomes adherent, and the disease then invades the jaw, eroding and extending into it, and this may occur even where independent mobility of the two structures seems present to a certain degree. The progress of the disease in the gland is not a very rapid one, and the mischief remains for many months isolated there, presenting, if properly dealt with, a condition favourable to a complete removal and permanent cure. Eventually, however, it extends backwards, and appears next in the glands over the carotids, just in front of the sterno-mastoid, and vertically below the angle of the jaw. When it reaches this situation operation is very seldom successful in curing the disease.

In the face and neck, as in other situations, cancerous disease almost always spares the lymphatic vessels by which it is conducted from its superficial site of origin into the nearest absorbent glands; and it is so rarely that the absorbents passing between the lip margin and the submaxillary gland are involved that they may practically be neglected in treating submaxillary cancer by operation.

The removal of such disease in the submaxillary glands by dissection is an operation of great difficulty, and almost always imperfect, so that recurrence is speedily seen. Scraping out is

still more certain to end in failure. The results I have witnessed in my own practice and that of other surgeons from these proceedings have been highly unsatisfactory, and usually the disease has seemed rather to be accelerated than retarded by them.

The following method of operative removal has yielded me results that are greatly superior. It may either be used, as I shall describe it, where the removal of the local focus on lip or tongue has already yielded a local cure, or it may be conjoined with the removal of the local disease where it still exists.

After shaving the chin and cheek, administering an anæsthetic, and completing the ordinary preliminaries, an assistant, standing behind the patient and fixing his head, compresses the facial artery in the usual manner against the base of the jaw. The operator carries a scalpel incision downwards from the angle of the mouth to the base of the jaw, dividing all the soft parts down to the bone. This incision lies anterior to the disease in the gland. From its lower extremity a second incision is carried backwards to the angle of the jaw parallel to and just above its base, dividing again all the soft parts, including the facial artery, down to the bone, above the compressing finger of the assistant. This incision lies above the disease. The thumb or forefinger of the operator's left hand is now placed in the mouth, and lifts the soft parts of the cheeks outwards, while the scalpel, carried close to the jaw, severs them from the bone as far back as its angle, so as to leave the outer surface of its body bare.

In the somewhat rare event of the disease having originated on the inner surface of the cheek, it can at this stage be freely dissected off the inner surface of this cheek flap. The arteries are then tied or secured by forceps.

At this stage the patient usually requires a fresh administration of the anæsthetic, which has been suspended since the first incision was commenced.

Exploration between the thumb inside and the index finger below the jaw now enables the operator to gauge the extent of the disease and the distance to which its connection with the jaw extends backwards and forwards. Corresponding with this an incision is now made completely through the jaw well in front of the disease by an amputation saw, which works better and more quickly than any other. The incision is usually vertical, and falls about the situation of the first or second bicuspid, which may be extracted before the saw is applied. The incision may sometimes be advantageously directed somewhat obliquely downwards and forwards, so as to save more of the alveolar edge, and the teeth, if present, may be extracted from its line. It is not, however, absolutely necessary to extract the teeth, and frequently it seems better to leave them, as what remains of

them heals in and may be of service. A second incision through the jaw is next similarly sawn well behind the disease. It severs the body from the ramus by an oblique cut. But its precise situation will vary according to the extent of the disease. The inferior dental artery generally gives no trouble, but if it bleeds from the inferior dental canal it is most easily controlled by inserting into the bony canal the end of a wooden lucifer match trimmed to a point by a scalpel and dipped in oil of turpentine to disinfect it, the projecting part being cut off flush with the surface of the bone. This securing of the artery may be done either now or later.

Usually a fresh administration of chloroform is required at this period, and during its administration the skin flap may be replaced over a small sponge which is held compressed by it against the jaw so as to control bleeding.

The next stage of the operation consists in dissecting down the loose part of the jaw along with the disease and the parts lying over the digastric triangle, severing them from the side of the tongue, the digastricus, mylohyoid, and hyoglossus muscles. If the side of the tongue be involved, its disease is removed in a mass along with them.

It may be remarked that, as the disease in the submaxillary gland has usually not extended to the skin, it is not necessary to make any cutaneous incisions below the level of the base of the jaw. But if the disease should have involved the skin, a couple of converging incisions may now be made in it by a scalpel or sharp-pointed scissors, care being taken to keep well free of the limits of the disease; or a vertical incision may, in every case, be made downwards, if required for space or drainage.

The most advantageous way to separate the disease from the side of the tongue and the digastric triangle is the following: The loose portion of the jaw is seized by the left hand and doubled downwards, exposing the floor of the mouth. The mucous membrane covering this is divided by sharp-pointed scissors from the one point of section of the jaw to the other. The left hand, grasping the jaw and embracing the disease so as to recognise its limits by the feel, now draws these outwards and doubles them down towards the neck, while the scissors severs the soft parts between them and the tongue and hyoid bone. While cutting in this manner the facial artery is divided, but so tense are the parts that it does not usually bleed, but appears as a gaping tube, and is secured in a Péan's forceps. It is well, however, to have a stout pile or other forceps ready to seize it in case of its giving rise to troublesome hemorrhage. There is usually little or no hemorrhage in this part of the operation, but if any occur, the bleeding points are temporarily seized by Péan's forceps and subsequently tied. The scissors

cuts soon free the jaw and diseased parts so that they can be drawn more away from the tongue, and the remaining attachments to the skin, &c., are cut through in the same way until the disease and jaw come away together in the operator's left hand. The Péan's forceps are next taken up and the points secured by them tied with strong antiseptic silk.

If the part removed be now washed and examined it will be seen whether the whole of the disease has been removed, and if this prove not to have been the case the portion left can be easily dissected off, so free is the access obtained in this operation. More of the jaw may also be sawn off if required.

The wound is closed by passing harelip sutures through its vertical portion, and the anterior and posterior ends of its horizontal part may be secured by continuous catgut suture. The middle is best left open for drainage, and gives egress to the end of a strip of iodoform gauze, which is packed between tongue and skin to serve as a capillary drain and prevent the fœtor that otherwise occurs in mouth operations. The gauze is drawn out on the second day or later.

In this manner I have operated upon twenty-nine cases, the earliest having been performed on November 13th, 1884. Only one case died; the others all recovered, and were dismissed apparently cured. Owing to the difficulty of tracing hospital patients I am unable to say in how many of these the disease subsequently reappeared, but I believe a large proportion have remained permanently cured. I have heard of recurrence in, I think, five only, although it is almost certain that more than this number have not been permanently cured.

The good results seem to be attributable to the free drainage and the accessibility of the wound, which lessens the immediate mortality, and to the completeness with which the disease can be removed, which diminishes the chances of its recurrence.—*British Medical Journal*, *December* 3, 1892, *p.* 1213.

60.—ON THE TREATMENT OF COMPLETE OBSTRUCTION OF THE LARGE INTESTINE BY TEMPORARY TYPHLOTOMY.

By Harrison Cripps, F.R.C.S., Assistant-Surgeon to St. Bartholomew's Hospital.

It is assumed that we are at the bedside of a patient who is obviously suffering from obstruction, and the general symptoms point to the large intestine as being its probable seat. The symptoms have been present for some days, and have been

gradually increasing in severity. A careful examination of the abdomen has revealed no definite tumour or other indication suggesting the exact site of the obstruction, and an examination of the rectum by the finger has given merely negative results. I may here say that the evidence afforded by the passage of tubes up the bowel is absolutely worthless, and that their employment is not devoid of danger. I have been present when some feet of soft rubber tubing or œsophageal bougie have been triumphantly passed up the rectum, and the procedure regarded as evidence that the obstruction must be at least as high as the transverse colon. Nevertheless, post-mortem examination showed an impassable stricture in the upper part of the rectum. Fortunately, these tubes bend and coil up, otherwise, if any force were used, they would certainly perforate the bowel. Even when no obstruction exists, I suspect that few tubes have ever been passed as high as the sigmoid flexure, and probably never beyond it.

Injections.—Since many cases of obstruction are due to a scybalous mass impacted into a previously narrowed or strictured portion of the bowel, the effect of carefully administered injections should be tried with a view to the washing away or breaking up of the obstructing plug. Injections should be used on a regular plan. I pass into the rectum, as far as it will go without using the slightest force, a half-inch india-rubber tube. It is then cut off so that only a few inches protrude from the anus. The patient being placed on his side at the edge of the bed, as much warm water as the bowel will hold without undue pressure is injected slowly up the tube by means of a Higginson's syringe. This having remained a few minutes, the nozzle of the syringe is removed, and the water allowed to return through the tube. This water is usually mixed with a certain amount of fæcal *debris* which has collected below the obstruction. A second quantity of water is now injected. If this returns clear, it is probable that little good will result from the washing, although it may be repeated once or twice again. On the other hand, should it return markedly stained the case is more hopeful, for it may mean that the water is disintegrating the lower part of a fæcal block. Indeed, so long as the water returns stained the injections should be repeated, and in fortunate cases it may happen that after a few washings the obstruction gives way, and copious evacuations follow. Warm water seems preferable to oil as having more solvent properties, and it also enables the effect of the injections to be more accurately gauged by observing the extent to which it is stained. We will now suppose that the injections have afforded no relief, and the question arises as to what further treatment can be adopted. Of course it is possible that, if untreated

surgically, the obstruction may give way by the aid of Nature alone. Provided the patient be not *in extremis*, I have no hesitation in strongly urging operative measures as affording the patient the better chance.

An operation being decided upon, the best manner of proceeding alone remains for consideration. If an obstruction be felt in the rectum or a tumour in the abdomen an indication will be afforded as to the locality for operation, but we will assume that we have a case, such as so commonly presents itself, in which, though the general symptoms point to obstruction in the large intestine, there is nothing to indicate more exactly its site. Pathological experience affords us some help, for it teaches that in three cases out of four the obstruction will be found on the left side in the neighbourhood of the sigmoid flexure. Some surgeons open the abdomen in the middle line as affording the best means of exploring all the large gut with a view to the possible excision of the obstructing part and the production of an anastomosis. The necessities of the case, however, often demand a departure from the theoretically ideal treatment. Many of the patients are in such a condition as would forbid any prolonged or hazardous operation. The excision of a portion of the bowel and the joining of the divided ends may be an admirable operation if undertaken at the right time, but to attempt this on a patient suffering from the shock of fæca, vomiting and with a belly distended like a drum is almost certain to deprive him of his last chance of life. Even if the patient does not succumb from the shock of a prolonged operation and if the anastomosis is successfully accomplished, he is probably no better off than he was before. The intestine above the junction is dilated and paralysed and has no power of driving its contents through the contracted bowel below. The patient is consequently unrelieved. In all cases of complete obstruction of the large intestine it is of paramount importance to give immediate relief to the distended bowel. When this has been accomplished, as it certainly can be by a temporary colotomy or typhlotomy, the question of resecting the bowel can be deferred to a subsequent date, when it can be undertaken on an empty intestine with all due leisure and a prospect of success. Dismissing then for a time the intention of performing any elaborate operation, I would advocate that the abdomen should be opened in the first instance on the left side rather than in the middle line, for the following reasons :

1. Because in the majority of cases such an incision will bring the operator at once to the site of obstruction.

2. If the obstruction is of a nature that necessitates colotomy the exploratory incision serves as a means of completing the operation.

3. If the obstruction is not found at the site expected the emptied sigmoid or descending colon at once shows that it is higher up and will almost certainly have to be dealt with by a temporary typhlotomy.

4. It must be remembered that in these cases the whole abdomen is tightly distended by inflated intestine and that it would often be impracticable to drag any part of the ascending or descending colon to an opening in the middle line without undue tension.

If it be decided to open on the left side, the best site for the incision is obtained by drawing an imaginary line from the anterior superior iliac spine to the umbilicus. The incision is bisected by this imaginary line at a distance of three fingers' breadth from the anterior spine. On opening the abdominal cavity the sigmoid flexure must be searched for and will generally be found distended; and a little further examination will disclose the cause of obstruction, which must be dealt with according to its nature. Should it prove a volvulus it might be untwisted; if an impacted mass of fæces the bowel should be incised, and the impaction removed. Should, however, the obstruction, as most commonly happens, be caused by a strictured bowel, and the stricture of such a nature that no subsequent operation could be performed for its relief, a full-sized colotomy opening should be made to complete the treatment. If the obstruction prove to be a volvulus or impacted fæces, it would be a nice point to determine whether the untwisting of the volvulus or the removal of the impaction would be sufficient, or whether it might not be better, after relieving either of these two conditions, to stitch a small portion of the gut which had been distended above the obstruction to the skin, and make a small temporary opening into it in order to secure a means for the distended bowel to get rid of its gaseous and fæcal contents. It does not seem sufficient merely to tap the paralysed and distended bowel with a view to letting out its contents, and immediately closing the opening, for at first, as pointed out by Mr. Greig Smith, it is only a small segment of the gut which will discharge itself in this way, whereas if a small part of the bowel is stitched to the skin accurately, and opened, it will in the course of a few hours or days completely empty itself, and the small opening can be subsequently closed. The surgeon, in these circumstances, should be guided by the general condition of the bowel. If the obstruction be of long standing, it would probably be the wiser course to open the intestine. On the other hand, if the obstruction had only been for a short period, the bowel might be trusted to pass its contents forwards. This remark only applies to the left side, for I am confident that with obstructions higher up the

bowel, where there is a longer piece of contracted and empty colon, it would be better to open it in every instance.

In a small portion of my cases, on exposing the colon on the left side it has been found empty and collapsed. Of course a moderate search should be made by introducing the fingers, and gently drawing down the bowel to ascertain whether the obstruction, though higher up, may yet be within reach. If this fails I would immediately close the abdominal incision with silk-worm gut, and open the abdomen on the opposite side over the cæcum. In those cases in which I have done this the distended cæcum was found without difficulty, although on the first occasion it looked so like a distended stomach that I hesitated to open it. After an experience, however, of a few cases it can be confidently recognised. A portion of the cæcum, about the size of a sixpence, is carefully stitched to the parietal peritoneum with the finest silk sutures. If the abdominal walls be thin, the skin may be included in the sutures, but if the walls be fatty and thick it is unsafe to attempt to draw the bowel and peritoneum up to the skin, for the tension will probably cause the stitches to tear from the bowel. The parietal peritoneum can be accurately stitched round the bowel, so as effectually to shut off the general peritoneal cavity. The sutures, of course, are applied as an inguinal colotomy, and do not pass through the whole thickness of the gut. When the stitching is completed an opening that will admit the little finger is made into the exposed cæcum. If this be made in the first instance by a trocar and cannula passed through a piece of thin india-rubber sheeting the fluid fæces can be conducted into a receptacle without flooding the wound and table. By the escape of air and fluid the distended cæcum and colon are quickly relieved, and, if peritonitis has not already occurred, the patient's life is for a time saved, and the subsequent treatment of the case can be considered at leisure. If the obstruction is of the nature of a volvulus, the distension behind being relieved, it has a fair chance of untwisting, for it has been shown by Treves and others how a volvulus is often prevented from untwisting by being pressed against the abdominal parietes by distended intestine. Again, should the obstruction have been caused by the impaction of a fæcal mass, time has been gained by opening the cæcum to allow of its gradual disintegration, and the restoration of a free passage through the bowel

Lastly, should the obstruction have been due to some growth occluding the canal, the cæcal opening may be enlarged as a means of permanent relief, or should the age of the patient admit, some subsequent operation might be undertaken with a view to excising the obstruction and establishing an anastomosis.—*British Medical Journal, February* 25, 1893, *p.* 396.

61.—ON THE TREATMENT OF HEMORRHOIDS AND PROLAPSUS OF THE RECTUM BY CLAMP AND CAUTERY.

By Henry Smith, F.R.C.S., Consulting Surgeon to King's College Hospital.

As some years have elapsed since I brought before the profession any further experience of the treatment of hemorrhoids and prolapsus of the rectum by means of the clamp and cautery, and as some important improvements were suggested and have since been carried out on a somewhat extensive scale, I think it may be useful to give some of the results of my later practice having reference to the alterations just mentioned. Before going into details I may say that these results have been such that my confidence in the use of the clamp and cautery has been established with greater firmness than ever. The objections which have been urged against the treatment in question, and which in its earlier history did exist, have been done away with, and, so far as my own experience has enabled me to judge, there are few surgical procedures attended with more satisfactory results as regards the relief and cure of disease and the restoration of the patient to health and comfort. When this mode of treatment was originally prominently brought before the profession the objects I had in view were to adopt a practice which would be attended with more safety to life and with less of the inconveniences which were liable to happen after the usual modes of treatment of hemorrhoids and prolapsus, and which I had often witnessed in my own practice and in that of other surgeons; fatal results were now and then witnessed after the severe and complicated operations in vogue, being due either to blood poisoning, lock-jaw or bleeding at the time, or after the proceedings in question. In other cases the convalescence of the patients was prolonged by long-continued and severe pain, by hemorrhage difficult to arrest and by great constitutional irritation, and in some instances local complications, such as the production of extensive fistulæ and contraction of the bowels or anal orifice, added much to the misery of the patients. The results of the employment of the cautery quite justified the expectations I had formed. Death was a rare sequence of the operation, even in the earlier history of its adoption, and as an illustration of this I may mention that during the period of twenty-five years at King's College Hospital, where I was continually operating on cases of the greatest severity, not a single fatality occurred, and the few fatal results in my private practice took place in my earlier experience and before the method of treatment had been improved and amplified, as it has been during the last few years. Hemorrhage, which

was looked upon by many as a great drawback to the operation, is a thing of the past; the severe pain following it has been to to a great degree lessened or abolished altogether. Contraction of the bowels can be entirely prevented, and the convalescence of the patient be materially shortened. In the earlier operations it was my custom to remove each of the hemorrhoidal tumours after being included in the clamp by the scissors, and then to apply the heated cautery to the cut surface. In most cases this plan succeeded well; but from time to time I met with instances where the tumours were very large and more or less troublesome, bleeding either at the time or on the first action of the bowels. It therefore occurred to me that a cautery might be so constructed that it could be used for removing the growths and at the same time thoroughly sealing up every vessel. Mr. Matthews furnished the blades of the cauteries with serrated edges. This alteration formed a very great improvement and was illustrated in a woodcut in the last edition of the *Surgery of the Rectum*. I have now quite abandoned the use of scissors, and always remove the tumours with the serrated cautery at a dull red heat. This change in the treatment has been attended with remarkable success. I have not been troubled with bleeding for several years; this is explained by the fact that when the tumours are separated in this way every vessel must of necessity be acted upon by the cautery, and the laceration produced by the serrated edges acts as an additional safeguard against bleeding. Another great addition to the treatment of late years adopted by me is the thorough dilatation of the sphincter previously to operation. I avoid actual rupture of its fibres, as I met with one very sad instance in a lady where this had been done and where almost complete incontinence of fæces remained. By the use of free dilatation of the sphincter the operation is more easily and satisfactorily performed, inasmuch as by this means the hemorrhoidal mass is brought well down, and each growth can be more readily isolated and included in the clamp prior to using the serrated cautery. In addition to this advantage I have ascertained that the pain, which in some cases was more or less severe for an hour or so after the operation in my earlier practice, is very much lessened or totally absent when the anal orifice has been thoroughly dilated. Formerly, in order to prevent the pain, I was in the habit of making a clean cut through the sphincter, but since the use of the dilating process I have discarded this plan. I may also mention in connection with this subject of pain after the operation, which is one of the main objections to the use of the ligature, that I find that the best local remedy for its relief is the constant application of very hot water by means of a small sponge. I have almost entirely discarded the use of cold water.

As stated above, I have had no trouble with hemorrhage since the serrated cautery has been employed for the separation of the tumours—such as now and then took place when they were cut off by scissors and subsequently cauterised. By such a process it was difficult to be certain always that every vessel was commanded, as is the case now when the growths are separated by the cautery. Moreover, I have quite discarded the practice of making an incision of more or less depth at the base of the pile prior to seizing it in the blades of the clamp. This was a totally needless proceeding and was productive occasionally of troublesome hemorrhage.

Retention of urine after this operation either in the male or female is rare. A suppository of two grains of opium is used immediately and the patient is told not to make any attempt to micturate until some hours have elapsed and the desire has become great. Also the patient should not be permitted to try to obey the call whilst in the recumbent posture in bed.

As a rule the constitutional disturbance is so slight that the temperature is hardly affected and it is difficult to persuade the patient that it is needful to remain in bed for a few days. I have met with only one case for several years which was productive of anxiety. This was last year in the instance of an elderly lady living in the country, on whom I operated for a large mass of hemorrhoids of many years' persistence. I had left her for ten days, as she was apparently approaching convalescence, but a fortnight after the operation I received a message from her medical attendant asking me to visit her. Her condition had been unsatisfactory for three days, and when I saw her she had some symptoms of blood-poisoning, great depression, dry and brown tongue and rapid pulse; but the face did not present that peculiar aspect which accompanies this grave malady. Still, the case was a serious one and I was very anxious about her. I ordered very large doses of brandy every few hours. The symptoms rapidly disappeared, and the patient recovered. Whether this was a case of blood-poisoning or not I cannot tell. The patient had previously had an attack of the prevailing influenza, and it occurred to me that her grave condition might have had something to do with the effect of the epidemic.

With regard to the liability of contraction of the bowel taking place after the operation by the clamp and cautery, I am glad to say that I have not met with any cases of late years where this occurred. In the earlier days of this operation I met with a case occasionally where contraction had occurred, but at that time my experience was somewhat limited. As it, however, increased I was enabled to avoid the causes of this mishap, which consisted, in the first place, in encroaching too much on healthy tissue and,

secondly, in removing skin somewhat freely. It is my custom now not to take away more than the actual diseased tissue, and, as to skin, I leave it as it is, except in instances where it is excessively redundant or in some old cases of prolapsus ani, with great dilatation and relaxation of the orifice. By taking these precautions contraction will be prevented. Moreover, I recommend patients to pass a bougie of moderate size for themselves occasionally after the parts have become thoroughly healed. I have never met with such severe cases of stricture of the bowel after the cautery as I have witnessed after either the old operation of excision or the modern one of crushing, and for the cure of which condition I have been compelled to divide the contraction freely.

With regard to the instruments in use I have not had occasion to make any alteration in the clamps of late. Messrs. Matthews have exercised so much care in their construction that, so far as I can see, they are in every way adapted for the purpose for which they are employed.—*The Lancet*, *March* 4, 1893, *p.* 459.

62.—THE TREATMENT OF ANAL FISSURE AND ULCER OF THE RECTUM.

By Lewis H. Adler, Jr., M.D., Philadelphia.

It is highly important to the success of any plan of treatment directed toward the cure of anal fissure that attention be paid to the condition of the bowels. Regularity of habit should be established and the evacuations rendered semi-fluid, as hard stools generally aggravate the symptoms.

To accomplish these purposes enemata or mild aperients should be employed, and the diet must be regulated, the use of bland and unirritating food being enjoined. All drastic purges should be avoided, as they are more or less stimulating and irritating to the extremity of the rectum.

In order to secure a daily evacuation of the bowels and to render the movement as painless as possible I am in the habit of ordering an enema of warm water or one of rich flaxseed tea, say from half a pint to a pint, to be administered every evening, preference being given to the night-time, as the patient can then assume the recumbent posture, which position, combined with the rest, affords the greatest protection from subsequent pain. If the first enema should prove ineffectual in producing the desired result another should be given in half-an-hour.

In order to relieve the pain and spasm of the sphincters attending the evacuation, it is well about half-an-hour before

the enema is employed to use a suppository consisting of ℞.—Ext. belladonnæ, gr. $\frac{1}{8}$ to $\frac{1}{2}$; cocainæ hydrochlor, gr. $\frac{1}{4}$ to $\frac{1}{2}$; ol. theobromæ, gr. x. Misce et fiat suppositoria j. Or, instead, an ointment of extract of conium may be used, as recommended by Mr. Harrison Cripps: ℞.—Ext. conii, ℥ij.; olei ricini, ℥iij; ung. lanolini, q. s. ad ℥ij.—M. A small quantity of this ointment should be smeared over the parts five minutes before a motion is expected, and again after it has taken place.

The various methods of treating anal fissure may, for convenience sake, be divided into the palliative and the operative:

Palliative Measures.—Palliative treatment will meet with success in a considerable proportion of cases, especially when there is no great hypertrophy of the sphincter muscles. Allingham states that the curability of the lesion does not depend upon the length of time that it has existed, but rather upon the pathologic changes it has wrought. This same authority states that he has cured fissure of months' standing by means of local applications, when the ulcers were uncomplicated with polypi or hemorrhoids and when there was not marked spasm or thickening of the sphincters.

It is essential to the success of the treatment of fissure, especially by local applications, that rigid cleanliness of the parts be maintained; for this purpose the anus and the adjacent portions of the body should be carefully sponged night and morning and after each stool with hot or cold water, the temperature being regulated to suit the patient's comfort.

In applying the various local remedies it is necessary first to expose the ulcer to view, and to anæsthetise its surface with a four per cent. solution of cocaine hydrochlorate, well brushed in with a camel's-hair pencil. The application may have to be repeated once or twice, at intervals of three or four minutes, in order to obtain the desired anæsthetic effect.

If any ointment has been used about the fissure the anus should be subjected to a hot-water douche before using the cocaine, as cocaine will not exert its anæsthetic influence on a greasy surface.

Among the different remedies that have been used in the local treatment of fissure of the anus may be mentioned the following: Nitrate of silver, acid nitrate of mercury, fuming nitric acid, carbolic acid, sulphate of copper, the actual cautery.

Of these topical applications the nitrate of silver is the best. Its effects are various: it lessens or entirely calms the nervous irritation, which is so important a factor in producing spasmodic contraction of the sphincters; it coats and shields the raw and exposed mucous surface by forming an insoluble albuminate of silver; it destroys the hard and callous edges of the ulcer, and tends to remove the diseased and morbid action of the parts.

The form in which I usually employ this salt is in solution (from ten to thirty grains to the ounce). To accomplish the best results the solution should be used once in twenty-four or forty-eight hours, according to the circumstances. It may be applied by means of cotton attached to a silver probe or to a piece of wood. The application is made by separating the margins of the anal orifice with the thumb and index finger of the left hand, and introducing into the anus the probe charged with the solution.

According to Bodenhamer, should the ulcer be more than a third of an inch above the margin of the anus, it will be necessary to use the speculum. The solution is to be applied to the fissure only; a few drops are all that is required. If thorough local anæsthesia has been induced by the use of cocaine the application of the silver salt produces little, if any, suffering, for by the time that the anæsthetic has lost its effect the otherwise acute pain of the nitrate of silver will have passed away.

After each application the part should be smeared well with an ointment of iodoform (thirty grains to the ounce.) The odour of iodoform may be disguised by the addition of a few drops of attar of roses. Iodol may be used instead of iodoform, and in the same way. After the ulcer has been touched once or twice with the silver solution the effect will be, in the cases that are benefited by this treatment, a considerable mitigation of the pain from which the patient suffered when at the closet and afterward, and the sore will present a healthy, granulating appearance, and slowly contract in size.

Unless the fissure be complicated with some other affection in children and in young persons, anal fissure is almost always curable by adopting the mode of treatment laid down.

Some authorities speak highly of the use of the acid nitrate of mercury, fuming nitric acid, carbolic acid, the actual cautery, &c., but in my opinion their employment is attended with more suffering than follows the use of the nitrate of silver or the simple operative treatment presently to be described. Furthermore, the application of these remedies is not so certain to effect a cure as either of the two procedures just mentioned, so that I rarely resort to their use.

The daily introduction of a full-sized bougie, made of wax or tallow, will sometimes act beneficially in cases of fissure by stretching the sphincter and producing such an amount of irritation as will set up a healing process in the ulcer. An application of cocaine or of belladonna ointment should be made to the part previously to their employment.

Operative Treatment.—In the more severe cases local treatment will fail to produce a cure, and operative interference will be rendered necessary. There are three methods of repute to be

considered in this connection: forcible dilatation, incision, and a combination of these two precedures, viz.: dilatation and incision.

Forcible dilatation.—This is the operation recommended by Récamier, Van Buren, and others. It consists in the introduction of the thumbs into the bowel, back to back, and then forcibly separating them from each other until the sides of the bowel can be stretched as far out as the tuberosities of the ischia. It is essential to place the ball of one thumb over the fissure and that of the other directly opposite to it, in order to prevent the fissure from being torn through and the mucous membrane stripped off. As pointed out by Allingham, it is well to repeat the stretching in other directions until the entire circumference of the anus has been gone over. In this manner, by careful and thorough kneading and pulling of the muscles, the sphincters will be felt to give way, and will be rendered soft and pliable. This procedure should always be practised with the patient thoroughly under the influence of an anæsthetic, and it should occupy at least five or six minutes. This operation is perfectly safe, but as it is no less severe than the operation by incision, and as it fails to effect a cure in some cases, I can see no advantage in adopting it instead of the more satisfactory and always successful plan of treatment—combined dilatation and incision. It may be found preferable, however, in some cases on account of the prejudice of patients against the use of the knife.

Incision.—A fissure can be cured by making an incision through the base of the ulcer and a little longer than the fissure itself, so as to sever all of the exposed nerve-filaments. The cut should divide the muscular fibres along the floor of the ulcer. In a certain proportion of cases this operation will meet with success, but it is not so certain and radical as the operation next to be described. It has the advantage over the other operations, however, of being nearly or entirely painless under local anæsthesia produced by cocaine, and, therefore, when general anæsthesia is contra-indicated, or is refused by the patient, this method is worthy of a trial.

Dilatation and incision, if skilfully and carefully performed, I believe to be a radical and unfailing cure for anal fissure. The bowels should be cleared out by a dose of castor oil and an injection, after which, under ether anæsthesia, the sphincter should be dilated in the manner previously described. This being accomplished and the ulcer properly exposed, a straight, blunt-pointed bistoury should be drawn firmly across its surface, making a cut about an inch in length and a third of an inch in depth. Instead of the blunt bistoury a sharp-pointed scalpel may be used. It should be entered at the margin of the anus,

passed under the ulcer, and made to protrude above the ulcer, the overlying structures being then divided from without inwards.

The subsequent treatment consists in keeping the patient in the recumbent position and in the use of a little opium to confine the bowels. After three or four days a laxative may be given, from which time daily alvine movements should be secured. In seven or eight days the patient can begin to move about, but for at least two weeks he should avoid standing too long on the feet. No dressing is required ; the parts should be bathed with a little warm water and carbolic acid soap, to remove offensive discharges.

The subcutaneous division of the sphincter, as recommended by some authorities, is not a satisfactory method, and is mentioned here solely for the purpose of condemnation. It is not only uncertain in its results but it is also painful, and in more than one instance has been followed by abscesses.—*Medical News, October* 15, 1892, *p.* 435.

63.—RECTAL EXCISION FOR CANCER: THE SELECTION OF SUITABLE CASES AND THE PROGNOSIS.

By Harrison Cripps, F.R.C.S., Assistant-Surgeon to St. Bartholomew's Hospital.

[Mr. Cripps' notes of seven cases that have survived without recurrence for over three years are not reproduced here].

By the increase of our knowledge in the treatment of wounds the mortality following surgical operations has materially diminished, so that the intrinsic risk following excision of the rectum is less than formerly, but those who have had any considerable experience of rectal cancer must know only too well that excision can never become the treatment for all or even the majority of cases, and that any attempt to make it so will again bring discredit on the operation. Recent surgical ingenuity has somewhat extended the range in which rectal cancer can be removed, and if this ingenuity was always tempered with discretion useful progress would be made. It is not sufficient to show that an extensive operation can be performed, involving even the partial resection of the sacrum, unless it can be further shown that a fair proportion of patients survive the operation with a substantial amelioration of their condition, or even a fair chance of a permanent cure.

If these conditions are to be fulfilled, a careful selection of cases suitable for operation will have to be made. There are

doubtless occasionally cases in which severe and high operations may be justifiable, but such instances are rare. Speaking generally, no operation should be undertaken unless there is a fair prospect of a complete removal of the disease. If the entire growth be not taken away the portions left seem to grow more rapidly than ever, the embryonic scar tissue forming a favourable nidus for extension.

According to my researches into the pathology of rectal cancer, there is practically only one form of the disease—adenoid carcinoma; yet, by the bedside growths have very different clinical features. The length of time that the disease has been in progress accounts for some of this difference, but it is by no means the only factor. In some cases the growth may have been present for many months, or even a year or two, yet only have affected the bowel in a comparatively superficial manner, it having chiefly crept along the mucous and submucous coats without completely perforating the muscular layers of the bowel. In other cases, even from the first, the cancer extends more rapidly in the deeper parts than on the surface, quickly invading and perforating the muscular coats, and then spreading widely into the neighbouring tissues. It thus becomes bound to the sacrum behind, the bladder, prostate, or uterus in front, and it is especially apt to invade the peritoneum of Douglas's pouch.

So long as the disease has not perforated the muscular coats, the prospects of an operation are hopeful. It means that the cancerous affection may still be confined to the rectum, and that, by the removal of the whole or a portion of that organ, it may possibly be eradicated. On the other hand, when it has once extended beyond the bowel, the prognosis becomes most unfavourable. It is true that surgically the rectum can be dissected out from the neighbouring organs, and surrounding indurated portions of tissue can be subsequently picked out, but the result is generally very disappointing, a recurrence taking place before the wound is completely healed. All that had been visible of the growth to the sight and touch had been removed, but undetected germs had been left behind, soon to develop into fungating masses. There is one part, however, where the extension of the disease through the coats of the bowel is of comparative unimportance—that is, when the recto-vaginal septum is implicated; and I have had two excellent cases of permanent recovery after removing a considerable portion of involved septum.

Before expressing an opinion as to the desirability of an operation in any particular case, and even before examining the local conditions, the possibility of distal dissemination must be considered. Implication of the lumbar glands and liver does not usually take place till late in rectal cancer; but it must be

remembered that occasionally the liver becomes infected while the local disease is comparatively insignificant. The younger the patient, the earlier appears the infection of internal organs, and I have known cases where malignant disease of the liver was well marked before any suspicion had been aroused as to cancer in the bowel. If the liver is to any extent involved, its nodular condition can be detected by palpation, while in other cases the emaciated and cachectic appearance of the patient, considerably in excess of what the local disease would explain, justifies the inference that the internal organs have already become cancerous. Should there be no evidence of general infection, the local state of affairs next comes under consideration. In the majority of cases a full and efficient examination can be made without the aid of an anæsthetic; but in doubtful cases the value of examining a patient under ether cannot be exaggerated. On more than one occasion I have found that the disease—which appeared at an ordinary examination too firmly adherent for removal—after the muscles had been relaxed by ether proved quite suitable for operation.

It may here be remarked that the speculum is of no practical value in examining rectal cancer, being far less reliable than the educated finger. The rigidity, the extent, and the hardness of the surrounding tissues are the essential features in determining the question of operation, and these can be ascertained by touch alone.

On passing the finger into the bowel, there is generally a healthy interval of mucous membrane between the anus and the lower border of the disease. Most commonly this border is about a couple of inches from the anus. The disease may extend all round the bowel, or it may only affect a portion of its calibre. The length of the gut involved, too, is very various; sometimes it is a mere patch or ring not more than half an inch in length, or it may be implicated for several inches.

We will first consider the conditions met with which make a case unfavourable for removal. The bowel at the diseased portion is generally strictured, and difficulty may be experienced in finding the opening into it. This is caused by the bowel at the site of the disease becoming, from constant straining and pressure from above, invaginated into the gut below. If this has occurred, a rough nodulated tumour can be felt, not unlike a cervix uteri. Around this is a *cul de sac* of greater or less depth, the real entrance to the bowel being through the centre to the prolapsed mass. It is very necessary to remember this tendency of the disease to become intussuscepted. I have often seen cases where the cancer was supposed to be confined either to the anterior or posterior wall, for the finger, on examination, had passed into this *cul de sac*, in the belief that it was the

channel of the bowel, and gave the idea of the growth being either in front or behind instead of, as in reality, surrounding the bowel, and it must further be borne in mind that in these cases the site of disease is much higher than it appears, and Douglas's pouch is often drawn down in the prolapse. This prolapse is present in about one-third of the cases.

The surface of the growth is nodular and hard to the touch, but bits can be easily broken off with the finger nail, and bleeding is quickly produced. If the finger be pressed against the mass, or if the tip can be insinuated into the orifice of the stricture, the whole feels rigid. The disease cannot be pushed upwards, nor can it, save to a very limited extent, be moved from side to side. This rigidity is caused by the extension of the growth beyond the walls of the rectum. Such cases are, in my opinion, quite unsuitable for excision.

As opposed to the kind of case just described, the disease may be found limited to a portion of the bowel, the whole circumference not being involved, or, if it is so, there is no tight stricture, the part being merely narrowed so that the finger can be passed through it without using any force. The surface of the growth feels like an ulcer with a rough, raised, indurated base. The border feels hard, and is tucked over so as slightly to overlap the surrounding healthy membrane. The finger, particularly, if the examination be made under an anæsthetic, is able to pass beyond the upper border of the growth. The bowel in the neighbourhood of the disease admits of considerable mobility on the neighbouring parts, and this is not merely noticed from side to side, but also from above downwards. Of course this mobility is not so free as in health, but is sufficient to convey to the surgeon the idea that the rectum can be dissected without much trouble from the surrounding tissue. This is the class of case, including the laminar form of growth, which is very suitable for removal, and often gives most satisfactory results. It will be found, from practical experience, that the greater proportion of rectal cancers will fall decidedly into one of the foregoing categories, but, occasionally, cases will be met with which cannot be definitely placed in either, and here the propriety of operating must depend on the surrounding circumstances, but seeing that if left, death must be the inevitable consequence, I think any doubt should be determined in favour of the operation.

Prognosis.—During the last fifteen years I have examined upwards of four hundred cases of rectal cancer. In about half of these, for various reasons, I have advised against any operative treatment, either by excision or colotomy. In the remainder of the cases operative interference was more or less strongly urged. In many my advice was not followed, the patient preferring

treatment by electricity or other quack remedies. There remain however one hundred and fourteen cases in which I have operated for rectal cancer; thirty-eight by excision, seventy-six by colotomy; total, one hundred and fourteen.

I do not propose in this paper to deal further with the colotomy cases. I give, however, a list of the thirty-eight cases of excision, and the ultimate termination of such cases as I have been able to trace. Of the thirty-eight operations, three died, thirty-five recovered; giving a mortality of a little less than eight per cent.

Thirty-eight Cases of Excision of the Rectum.—Recovered thirty-five; died three. Subsequent history of cases that recovered: seven no reliable subsequent history, ten recurrence within one year, five recurrence between first and third year, one died a year later without recurrence, one no recurrence after eighteen months, eleven no recurrence three under one year, one after two years, one after three years, two after four years, one after five years, two after six years, one after twelve years.

It will be seen that out of the twenty-eight cases whose subsequent history can be traced, in fifteen recurrence is known to have taken place, while in twelve no recurrence had occurred. In seven of these over three years had elapsed, so that, according to the method adopted by Mr. Butlin and others, these cases may be considered as cures.

There are two prominent features which have an important bearing on the after-treatment of rectal excision. The first, and one that is common to nearly all cases, is the tendency to contraction, and the second that, in no fewer than three of the cases, there was a recurrence which was successfully treated by a second operation.

The contraction, which is so troublesome, can to a great extent be avoided by the proper treatment of the wound during the healing process. The contraction seldom commences till the third or fourth week, but will, if not prevented in the course of a few months, lead to almost complete closure of the outlet. This complication can in a great measure be prevented by introducing into the bowel a full sized rectal bougie an inch and five-sixteenths in diameter. This should be commenced at the end of a fortnight, and allowed to remain in for some hours daily for a month. The patient should then be directed to pass the bougie once daily for a year or even longer. The tendency to contraction seems gradually to disappear, and gives comparatively little trouble after the second year. The recurrence, which was successfully treated in three of the cases, was almost certainly due to minute portions of the disease being left behind at the operation, and the fact of the second removal proving so success-

ful is very encouraging, and I think that we should not hesitate to operate a second time provided the recurrence is within reach and its removal practicable. From the facts which have been stated, very brilliant results cannot be claimed, but it must be remembered that we are not only dealing with malignant disease, but with that disease when situated in a peculiarly inaccessible part of the body.

I claim, however, to have shown, from an experience of a considerable number of cases, that the mortality of the operation is less than eight per cent., and that, while if the disease be left alone death is inevitable, an excision in suitable case holds out a fair prospect of relief, and even of a permanent cure.—*British Medical Journal*, *December* 10, 1892, *p.* 1277.

DISEASES OF THE ORGANS OF DIGESTION.

64.—ON INJURY TO THE PANCREAS: A CAUSE OF EFFUSION INTO THE LESSER PERITONEAL CAVITY.

By Jordan Lloyd, F.R.C.S., Surgeon to the Queen's Hospital, Birmingham.

[The chief points in Mr. Jordan Lloyd's cases, which are recorded in full detail, were as follows:—*Case 1.*—A boy aged twenty was knocked down by a horse and hurt in the abdomen, and complained of severe pains in the upper part of that region, and vomited several times. He left the hospital in nine days practically well, but in a few days later began to have attacks of pain in the epigastrium, lasting two or three days and sometimes attended by vomiting. During the next three months he continued under observation, and the abdomen became tense and prominent in the epigastrium, and tender on pressure. His temperature throughout had been normal or nearly so. He was now, August 29th, 1888, suddenly seized with a severe attack of vomiting, and a swelling appeared in the left hypochondrium. The swelling was tense and rounded, reaching from the left costal margin down to the umbilicus and into the upper part of the left lumbar region. It was dull on percussion and tender to pressure. The signs varied much from day to day, but after a short interval the swelling was explored and dark-coloured fluid withdrawn; twenty-nine ounces in all were taken away. His condition did not improve, and the abdomen was ultimately opened by incision and further fluid escaped, but the boy died

in a few hours. Post-mortem there was an enormous encysted hæmatoma in the lesser peritoneal cavity, but no special examination of the pancreas was made. There was general acute peritonitis. *Case 2.*—A man aged twenty-seven received a severe injury to the abdomen, followed by much the same symptoms as in the first case. Another rapid development of an abdominal tumour occupying nearly the whole umbilical, the lower part of the epigastric, and the left hypochondriac regions. He became very anæmic. Mr. Lloyd diagnosed an effusion into the lesser peritoneal cavity. There was no pyrexia, and on aspiration twenty ounces of dark brown, turbid fluid were drawn off. Nine days after the injury the abdominal swelling was incised in the middle line above the umbilicus. He made a good recovery.]

In looking over recently recorded cases of pancreatic cysts which have been treated by surgical operation, three points have forced themselves upon my mind. (1) The large number which have followed abdominal injury; (2) the almost general absence from these reports of any reference to the condition of the lesser peritoneal cavity; and (3) the striking similarity between these cases, and the two cases of effusion into the lesser peritoneal sac which I am about to relate.

The main object of this paper is to call attention to the relationship which exists between injuries of the pancreas and accumulations of fluid in the lesser peritoneum, a relationship which, so far as I can ascertain, has hitherto attracted but little notice.

My attention was first called to the subject in the year 1878, when, on making a post-mortem examination, I was surprised to find the middle two-thirds of a gangrenous pancreas detached and free in a collection of fluid contained within the lesser peritoneum. About four years later I saw in the practice of a friend a similar case. I could find but scant reference of any kind at this time to affections either of the pancreas or the lesser peritoneum, and none whatever to the particular condition just referred to, but since then our knowledge of pancreatic disorders has been much added to, and gangrenous pancreatitis has become a well recognised, although rare, disorder. Injuries of the pancreas —uncomplicated by serious and usually fatal damage to other structures, like the liver, spleen, and stomach—are perhaps even rarer, but I have met with two cases of the kind.

In connection with the first case I wish to call attention to the following points: First, the injury to the belly and the symptoms immediately following; secondly, the onset of another set of symptoms during the second week and the rapid development of a large tumour in the umbilical, epigastric, and left hypochondriac region, which presented varying physical signs from time to time, according to the condition of the overlying

stomach; thirdly, the removal of dark fluid contents from this tumour by aspiration; and fourthly, the discovery post-mortem that the tumour was due to a collection of fluid in the cavity of the lesser peritoneum.

The points to which I desire to call attention in the second case are, first, the nature of the injury received. The patient was held on the ground by a heavy man kneeling on his belly; in this position the pancreas might easily be squeezed between the knee and the body of the first lumbar vertebra upon which it lies; secondly, the early onset of frequent vomiting; thirdly, the rapid development of a large tumour in the umbilical, the epigastric, and left hypochondriac regions, which was looked upon as the distended sac of the lesser peritoneum before operation. Fourthly, the displacement of the heart's apex beat upwards. Fifthly, the area of dulness, and impaired breath sounds in the left back. Sixthly, the removal by puncture of brownish fluid. Seventhly, the details of the operation and the verification of the diagnosis by digital exploration of the cavity. Eighthly, the perfect recovery which followed; and lastly, the examination of the fluid made by an experienced physiologist and chemist.

The diagnosis of pancreatic cyst appears to me often to have been made upon insufficient evidence. The fact that a cavity within the abdomen contains pancreatic secretion is no proof whatever that the cavity is within the pancreas; it tells us nothing more than that the cavity is connected with this organ. Neither is the fact that the pancreas can be felt by an examining finger from within an intra-abdominal sac, for if the lesser peritoneal cavity is opened from below by an incision in the transverse meso-colon, a finger passed through this opening enters a large space at the back of which the pancreas is found; similarly, too, if the lesser peritoneal cavity is opened by an incision in the great omentum below the stomach. Through either opening the deepest part of this space is found to the left, and cannot be reached by the examining finger.

I believe that all the cases referred to above are of the same nature, and that the explanation I am giving of their nature is the correct one, namely, that they are fluid effusions in the lesser peritoneal sac, the result of injury to its underlying pancreas, and not cysts of the pancreas in the proper meaning of the term.

A blow in the upper part of the abdomen immediately below the liver may crush the pancreas against the first lumbar vertebra; its peritoneum covering, being thin, may be easily torn through, and bleeding will then take place into the lesser peritoneal sac. With a patient in the supine position this blood will gravitate to the deepest part of the cavity, and will be hidden behind the stomach and beneath the left concavity of the diaphragm, and may thus escape the surgeon's observation.

This blood doubtless may be absorbed if the damage to the gland is slight and none of its ducts are injured, but if a duct is torn I imagine the secretions of the gland may be poured into the cavity with the blood, and although Senn tells us that pancreatic juice is not irritating to the peritoneum I fancy that a mixture of pancreatic juice and devitalised blood clot may have a very different effect, and that chemical changes of a digestive kind may then be started which may irritate the serous lining of the sac and cause it to pour out its secretion and thus gradually distend its cavity.

Doubtless cysts may form in the pancreas just as they may in any other portion of the body, but why they should so often and so rapidly follow an injury I cannot understand. We see nothing of the kind after injuries to the structures of a similar nature elsewhere.

I can find no mention in any works on abdominal tumours of that variety of tumour which depends upon effusions into the lesser peritoneum; indeed, so far as my literary investigation has gone at present, I cannot find any special reference whatever to diseases of this structure, but that the lesser may be disordered altogether apart from the greater peritoneal sac is a fact as to which there can be no doubt. Fluid collections in its cavity may occur, as the above cases show, from injury, and they may result also from several other causes. I made a post-mortem examination of an old woman only a few weeks ago, whose lesser peritoneal cavity was filled with bile-stained inflammatory effusion. She suffered from suppurative cholecystitis, due to gall stones, and the lower part of the cystic duct was perforated by an ulcer through the posterior layer of the gastro-hepatic omentum into the lesser peritoneal sac. Perforation of the stomach by an ulcer on its posterior wall will, if the viscus has not formed adhesions to the structures behind it, give rise to such an effusion. Perforations at the posterior part of the transverse colon, abscesses or cysts of the spleen, liver, or pancreas may similarly open into this cavity.

A few words on the anatomy of the lesser peritoneum may not be out of place here, as I venture to think its exact size, shape, and limits may not be familiar to all.

In the first place, it varies considerably in size in different individuals, particularly with regard to its extension downwards between the layers of the great omentum. It is situated behind and below the whole of the stomach, the small or gastro-hepatic omentum, and the anterior layer of the great omentum. It lies in front of the whole of the pancreas, to which it is always closely adherent, and from which it is never separated by a layer of fat even in the stoutest persons. Its lower boundary forms the upper layer of the transverse mesocolon, and reaches laterally

from the hepatic to the splenic flexure of the colon. Its right limit is formed by the folding of the membrane into the foramen of Winslow, and its left limit corresponds to the hilum of the spleen. Its upper limit is determined by the groove in the liver to the right of the lobus Spigelii, by the transverse fissure of the liver, and by the under surface of the diaphragm covered by the lower layer of the right lateral ligament of the liver. The under surface of the Spigelian lobe is the only part of the liver which lies bare in this cavity. When the sac is opened by a transverse incision through the great omentum close to the lower border of the stomach, it can be seen that the deep part of the cavity is arranged in at least three distinct hollows: one to the right of the Spigelian lobe, one at the bottom of which this lobe lies, and one reaching deeply backwards to the left of the lumbar vertebra as far as the back of the abdomen opposite the lower four ribs. I have injected several bodies with plaster-of-Paris with a view of determining the limits of this space, and I find that the great bulk of the injection sinks into the deepest hollow to the left of the spine, and cannot be detected by palpation from the front of the abdomen. In most cases the foramen of Winslow is patent, and as the cavity becomes filled the injection escapes through this opening into the general peritoneal cavity; but in a few specimens I have already examined this opening has been quite impervious. In a few cases, too, openings have existed in the anterior layer of the great omentum, through which the injection has made its way into the general peritoneal cavity. An opening made upwards through the transverse mesocolon opens the lesser peritoneal sac towards its lowest part.

Pathological distension of the lesser peritoneum gives rise to a tumour in the left hypochondriac, epigastric, and umbilical regions of a somewhat characteristic shape, but which appears to vary from time to time in form and size according to the condition of the overlying stomach, for when the viscus is full of liquid contents it increases the area of the tumour's dulness, whilst it makes its outline less definable by palpation, and if the stomach is distended with gas the dull area becomes resonant, and apparently the tumour may disappear altogether The colon always lies below the tumour, and never in front of or above it, as is the case in kidney enlargements. The stomach is most readily distended with gas by giving a few grains of carbonate of soda and immediately afterwards a little tartaric acid, and the colon is best distended with water by injection *per rectum*. I have already said that the downward limits of this space vary in individuals according to the extent to which the two layers of the great omentum remain separate, and in such cases the sac may distend so as to occupy the loins or even to fill the whole abdominal cavity.

Pain is an uncertain symptom. It has usually been paroxysmal in character, coming on at irregular intervals and continuing for variable periods. It is referred to the epigastrium, strikes through to the back, and is sometimes aggravated by the taking of food.

Vomiting is usually met with. It varies very much as regards frequency and its relation to meals—it may be almost continuous for a long period, or it may come on at irregular intervals only.

Emaciation is a conspicuous feature, and is more than the vomiting is sufficient to explain.

Anæmia has been marked in each of my cases. It disappeared with surprising rapidity after operation in the patient who recovered.

The dulness over the left lower ribs posteriorly is an interesting sign. The cavity could easily be tapped by a needle introduced from behind, and might give rise to the belief that the fluid was in the pleural cavity.

The heart may be lifted up by the underlying tumour, so that the apex beat is raised as high as the fourth intercostal space, as was seen in my second case, and also in that recorded by Senn. This displacement might easily be wrongly attributed to the presence of fluid in the left pleura. Cardiac pulsation, too, may be transmitted to the abdominal swelling.

In both of my cases the temperatures were subnormal throughout, although in Case 1 post-mortem examination showed that some amount of general peritonitis was present.

In neither of my cases did the urine at any time contain sugar, but in both a little albumen and phosphates were present.

In closing this paper I beg to submit the following conclusions:

1. That contusions of the upper part of the abdomen may be followed by the development of a tumour in the epigastric, umbilical, and left hypochondriac regions.

2. That such tumours may be due to fluid accumulations in the lesser peritoneal cavity.

3. That when the contents of such tumours are found to have the property of rapidly converting starch into sugar, we may assume that the pancreas has been injured.

4. That many such tumours have been regarded as true retention "cysts of the pancreas," and that this opinion has been formed upon insufficient evidence.

5. That the diagnosis of distension of the lesser peritoneal cavity before operation can usually be made by the characteristic shape of the swelling.

6. That early median abdominal incision and drainage is the safe and proper treatment.—*British Medical Journal*, *Nov.* 12, 1892, *p.* 1051.

ORGANS OF URINE AND GENERATION.

65.—THE TREATMENT OF SO-CALLED IMPASSABLE URETHRAL STRICTURE.

By G. Buckston Browne, M.R.C.S.

The object of this paper is to attempt to prove that the worst cases of urethral stricture can be treated *tout d'un coup*, that is, all at one operation, and put at once into a satisfactory state without any painful preliminary instrumental treatment and without any perineal incision, and only detained in bed for some less time than a fortnight.

We are indebted to Syme for the invaluable dictum that if urine comes out from a bladder through a urethra, a surgeon should be able to press an instrument through that urethra into the bladder. But may we not go still farther and say that in all cases of urethral stricture, whether urine issues or does not issue from the external meatus during an act of micturition, a surgeon with skill and patience should be able to pass an instrument through the stricture and into the bladder? Secondly, may it not be asserted that when once an instrument has been fairly passed into the bladder, it may at once be withdrawn and replaced by one a size larger, by a surgeon who has confidence in himself; and, thirdly, may not all strictures be in this way dilated up to No. 6 or 7 English, and when once so dilated may not Civiale's urethrotome be introduced and the stricture or strictures cut, so that 15 or 16 or 17 be at once passed fairly into the bladder?

Personally, I answer these three questions in the affirmative. So far I have never failed to carry out successfully the procedure about to be described.

The instruments required are very simple. Some blunt-ended English gum bougies, varying in size from No. 3 to 10, a foot-rule marked in inches, a Civiale's urethrotome, also accurately marked in inches, a No. 11 or 12 soft gum catheter mounted on a stylet for tying in at the close of the operation, and, finally, a complete set of well-burnished steel sounds. These sounds are far preferable to silver catheters, which, when small, easily bend, and so destroy all accuracy of manipulation. The sounds are each two sizes larger in the shaft than at the point, the smallest being No. 2 in the shaft and less than No. 1 at the point (marked 0—2), the next being 3 in the shaft and 1 at the point (marked 1—3), and so on up to the largest, No. 17 (marked 15—17).

The night before the operation some aperient medicine should be administered, and an hour or two before the operation the patient should have a hot sitz bath and an enema of warm water, in order thoroughly to clear the rectum. He should be directed not to pass water for at least an hour before the appointed time, for it is desirable that there should be some urine in the bladder. If an operating table is not available, the bed should be made firm and level by placing the leaf of a table on a board under the mattress. Each leg is wrapt up separately in a small blanket, and a third blanket is placed across the body. The perineum and pubes are thus left exposed. The patient is then completely anæsthetised. The anæsthesia must be complete, for the urethral reflexes are the last to be anæsthetically abolished, and the success of the operation depends upon the patient being absolutely quiet. One or two of the blunt ended soft bougies are now introduced into the urethra, and the exact distance of the stricture—or in cases of multiple stricture, of the anterior stricture—from the external meatus is accurately ascertained and measured. A careful attempt is now made to pass the smallest of the steel sounds or dilators through the stricture. This will probably not be possible in severe cases unless the surgeon stands on the patient's left, or sits down on the bed on that side, and guides the point of the instrument with his left forefinger in the rectum. The finger in the rectum gives great security, and by its aid the operator is able to keep the dilator correctly in the middle line, and he will at once know if his instrument passes out of the urethra and into the tissues in front of the rectum. No force must be used, but steady search must be made for the orifice of the stricture, and firm but gentle pressure exerted when it is found. The operator will, after a little while, find the stricture yield under his hand, his instrument will advance a little, and he will be gratified and feel safe and successful if he becomes aware that the end of the sound is firmly grasped by the stricture. There must now on no account be any hurry. If the instrument is so tightly grasped that it feels almost immovable, by waiting the grasp will be found to relax and the dilator can be pressed a little further. When fairly through the stricture, even if the sound cannot be carried into the bladder, it may be withdrawn, and the next sized one introduced; this will dilate still more and sound after sound may be passed till No. 6 or No. 7 has been put well through the stricture. If a No. 4 or No. 5 is now used it will only be lightly held by the dilated stricture and its point can be manipulated and directed carefully into the bladder. The sound is known to be in the bladder by the shaft being absolutely in the middle line and the point felt to be free in a cavity, for owing to the fact that there is urine there, there is room for the play of the point in the

bladder. When once a sound has been fairly passed into the bladder and at least a No. 6 or No. 7 put well into the stricture, the urethrotome may be employed. Its successful introduction is not always an easy matter. Leaving the No. 7 sound lying in the urethra the operator should now change sides, and, standing on the patient's right, he takes out the sound and at once slips in the urethrotome. I frequently shake it in rather than pass it. This instrument should pass with ease into the bladder. If it does not something is wrong, and the knife must not be used till the urethrotome is fairly placed. Perhaps a sound or two may have to be passed again before the straight urethrotome can be introduced without let or hindrance into the bladder. When in proper position it is carefully withdrawn until the bulb is an inch beyond where the stricture is known to be, the blade is then protruded and a free incision is made from behind forwards for a good inch in the floor of the stricture. The blade is then sheathed and the instrument withdrawn. Full-sized sounds are then passed, probably Nos. 13, 14, 15, 16, and 17 in succession, and then the soft catheter, mounted on a stylet, curved so as exactly to correspond with the curve of the sounds, is passed in, the stylet removed, and the catheter tied in. The urine which is in the bladder will issue by the catheter and so show that all is right. Should there be any doubt about the catheter being in the bladder it should be withdrawn and on no account should any water be injected through it.

This is a brief description of the steps of the operation I recommend for the immediate and complete relief of bad cases of stricture, but of course for such a variable form of disease all kinds of modifications are frequently necessary. I would lay great stress upon the importance of not being in a hurry to pass small instruments into the bladder; they may be satisfactorily through the stricture, but may be arrested beyond by reason of their very smallness, for although it is certain that on the bladder side of the stricture the urethra is roomy enough, still its walls are sure to be irregular owing to rupture or fistulous openings, and in these the fine point of a small sound will easily become caught. It is well, therefore, to dilate the stricture gradually with sound after sound, and then taking a smaller one, which will be loosely held by the stricture, pass it carefully into the bladder. In some cases, owing to the fixation of parts by infiltration of tissues, no rigid instrument can be passed into the bladder. In such cases the stricture should be divided; and in a few days, after the parts have drained, and the urine come by the urethra, an instrument can be passed properly into the bladder. It is, however, impossible, in a short paper like this, to go fully into every complication and difficulty.—*British Medical Journal*, *November* 26, 1892, *p.* 1166.

66.—ON THE TREATMENT OF SYPHILIS.

By Robert Holmes Greene, M.D., New York.

It is unnecessary to state that it is impossible to lay down a rule for every case of syphilis, and that much depends upon the good judgment of the physician. I would emphasize this point: that in treating syphilis we are engaged in a fight with an enemy, the round infective cells of syphilis, which must be destroyed as early as possible before they have had an opportunity to cause structural changes in the tissues they invade, and we remember that any that escape destruction act as foci from which others are generated. The time we begin our general treatment, with certain exceptions, is on the appearance of the erythema. Treatment is commenced earlier where the site, pain caused by extent of initial lesion, extreme lymphatic enlargement, interference with the married or sexual relation, impatience of patient, precocious general pains or dangerous location to others, as the finger of surgeons, are such as to demand it. We use in the beginning as large doses of the least irritating mercurial preparation taken internally as the patient can stand, remembering also that the sounder the tissues the less irritating will be its effect. We endeavour to have the gastro-intestinal tube, throat, and mouth in as perfect a condition as possible by proper treatment directed towards that end, either before or in connection with the special treatment.

In the majority of cases we have found the protiodide the least irritating preparation to use, and it can be well combined in a pill with citrate of iron and quinine and extract of hyoscyamus. The size of the doses to commence with depends upon the present condition and natural strength of the patient. We begin with less in a naturally weak woman than in a robust man; as a rule, a pill containing from one-fifth to half a grain can be safely taken three times daily. Sometimes the tannate works well in doses of half a grain three times a day, but, as a rule, it is more irritating.

I have seen one case of early syphilis in which, the protiodide not agreeing, the biniodide was given with good results in a mixture with about six grains of iodide of potassium daily, not enough potassium to make the so-called "mixed treatment," but the little used seemed to make the biniodide more easily absorbable.

We continue this treatment for about two months with careful attention to diet and hygienic surroundings. By this time the erythema will probably have disappeared, and the glandular enlargements (which are a pretty good guide to the success of treatment) have somewhat diminished. We may now omit

treatment for a few days, but we still have the skin infiltrated, and any irritation may bring back a relapsing eruption.

To support this view I would call attention to a paper published in 1885 by Neumann, and quoted by Dr. Taylor, in which he states the results found on microscopical examination of the skin in seven cases of syphilis, in which macroscopically the eruption had disappeared from view for periods of from four to eight months. To quote his words: "There is a considerable infiltration of round cells in the cutis and its annexa in the vessels, sebaceous and sweat glands, and hair follicles, with or without pigment. The tissues of the cutis are therefore much clouded with nuclei, and thus we see that the exudates produced by syphilis have in no way that short character which some maintain they have." We remember that each of them is a focus of infection. We have smothered the flames but not put them out, and it seems a most sensible view, supported by clinical experience and the microscopical examinations mentioned above, to attack them in the most direct manner—namely, through the skin. We now use inunctions of some preparation of mercury—the ung. hydrarg., U.S.P., and the oleate seem the best—and, remembering that the glandular enlargements and the skin filtrations are scattered pretty well over the entire body, we try to cover the whole of it.

With hospital patients we can not do as well as in private practice, but if we have control of the patient (it will be to advantage to have the services of a professional rubber), we use on an average about thirty-five grains at a time and divide the body for convenience into eleven sections: 1, neck and head; 2 and 3, arms, palms, and axillæ; 4 and 5, legs and soles; 6 and 7, thighs, groins, and Scarpa's triangle; 8 and 9, breast and abdomen; 10 and 11, back from the root of neck to the lower part of the gluteal region. We have the ointment thoroughly rubbed into one of these parts each night, the part having been thoroughly washed beforehand with soap and warm water, followed by a two-per-cent. carbolic solution. After it has been rubbed in it is not well to wash the skin the same night, but it may be wiped with a towel.

By this method, allowing for two or three days, when it may be inconvenient to carry the treatment out, in about fifteen days we shall have thoroughly covered the body, and in all probability without having given rise to any irritation. We then give the patient a few days' rest, followed by another course of inunctions, and then a slightly longer rest before recommencing. After four such courses we shall be between the fourth and fifth month from the appearance of the erythema, and will frequently be surprised to find how well we have succeeded. We then give a rest of one or two weeks, a shorter course of

inunctions, and, if doing well, a longer rest, or return to the pills for a time. We do not feel safe unless the patient has had at least forty inunctions. We let the glandular enlargements be, to an extent, our guide in regard to the continuance of the inunctions.

In the second year, if the patient's condition is satisfactory, we give him at intervals the biniodide combined with iodide of potassium, and a bitter tonic; about one-eighth of a grain of biniodide is well borne by the average patient, but when we use any mercurial preparation we endeavour to give full doses.

Should we find evidences of relapsing secondary eruptions or glandular enlargements, we return to inunctions. I think in the vast majority of cases where some such method has been carried out from the outset, at the end of two years we can pronounce a patient cured, and expect such patients, so far as syphilis is concerned, to be able to procreate healthy children.

The method I have attempted to sketch in a condensed form refers, of course, only to those cases we have had from the beginning of the erythema. Should the patient have a papular eruption when he first comes under observation, we start with the inunctions at once, and we follow a similar course should there be a pustular or rupial eruption. Such eruptions are more often seen in hospital patients, whose dissipated habits have tended to weaken them and lack of cleanliness given opportunity for the invasion of pyogenic microbes. Inunctions may be used here, but, as we have a twofold process to combat, we try first to get rid of the crust and use a weaker ointment—hydrarg. precip. alb., one part to eight parts of vaseline, to which may be added two per cent. of carbolic acid, oxide of zinc, and starch to assist it in keeping the parts constantly covered.

Hypodermic injections of mercury have been of late much written about, and a great number of different preparations recommended for that purpose. We find the bichloride as efficient as any, used in the strength of one-eighth to one-third grain at a time daily or every other day with strict antiseptic precautions.

The hypodermic method is more particularly adapted to enlarged lesions, especially when situated on some prominent part and which it may be necessary to remove with greatest haste, and it is also useful in the deeper lesions of syphilis.

We use iodide of potassium more particularly for the later lesions of syphilis, especially of the nervous system, either by itself or combined with biniodide, but we find it well in addition in many of these cases to try to destroy, either by mercurial inunction or hypodermic injection of the bichloride, any of the infiltrating round cells that may be present. We also use it in those rather rare cases of syphilis which tend to invade the

deeper tissues of the body at an early date, and occasionally in combination with the inunction where we meet with relapsing secondary eruptions which are rebellious to treatment and have lasted for some time.

A strong argument to my mind against pinning our faith too firmly to internal medication and to commencing the treatment on the appearance of the chancre and before the erythema, is the sad view taken of the disease by the prominent advocates of either of those methods of treatment. Fournier, the chief apostle of internal treatment, considers it to be a disease which will require treatment at intervals during a lifetime, and I was much interested in hearing a prominent disciple of Hutchinson (who believes in commencing the treatment on the appearance of the chancre) remark recently that he held the same views. I do not at present believe such a sad view need be taken if some such method of treatment as I have tried to outline above, following the suggestions of Dr. Taylor, is carried out.—*New York Medical Journal, November* 26, 1892, *p.* 601.

67.—THE RESULTS OF NEPHROLITHOTOMY.

By George W. Gay, M.D., Surgeon to the Boston City Hospital.

If any reliance can be placed upon statistics, the operation of nephrolithotomy is not a very dangerous one. Baum's table, issued in 1888, is supposed to contain all published cases up to January of that year. The total number is 50. Eight were fatal, and 42 recovered more or less completely.

At my request, Dr. C. M. Whitney has collected all the cases recorded in English and American literature from January 1, 1888, to April 1, 1892. He has found 68 cases in which the kidney was opened, and one or more calculi were found. Fifty-eight recovered and ten died. This gives a mortality of 14 per cent. which is not large considering the nature of the disease, and the importance of the organ affected.

Combining Baum's cases (50) with Whitney's (68) we have 118 in all as the number reported to April 1, 1892. One hundred patients recovered and eighteen died; a mortality of 15 per cent. In a most interesting paper published in May, 1887, by Dr. E. O. Otis, 42 cases of nephrolithotomy are reported with only four deaths, or $9\frac{1}{2}$ per cent. Probably many of these cases are included in Baum's table.

The size and number of stones varied greatly. The largest calculus weighed five ounces. The next in size lacked only a drachm of this weight. Both patients recovered. The largest

number found in one kidney was 150. In another instance 100 small ones were removed ; from others, 89, 46 and so on down to a single bit of gravel weighing but a few grains. In one of Morris's cases, fatal from septicæmia, 200 calculi were found in the other kidney at the autopsy.

Mr. Clement Lucas reports a most remarkable case of a woman thirty-seven years of age, who had suffered from hæmaturia seventeen years, pain in right side nine years ; she had had a tumour in the left side seven years, which was supposed to be a floating kidney. Her right kidney was removed in July, 1885, and was found to be a mere shell containing calculi weighing twenty-one ounces. After four months of comfortable existence, she was suddenly seized with severe pain in right side followed by complete suppression, or rather absence of urine in the bladder. This state of affairs continued for four days and over. The left kidney was then opened, the ureter found plugged with a small stone, which was removed. The wound healed in ten weeks. The woman was in good health and doing her work five years after the operation.

Another woman had calculi removed from both kidneys at the same time. She died from asthenia in thirteen days. One case terminated fatally from hemorrhage, the opposite kidney having been opened for calculi six months previously. The nucleus of the stone in another case was a needle supposed to have been swallowed fifteen years before the operation. Complete suppression of urine had existed for fifteen days prior to operation in one case. At the autopsy both kidneys were found to be crowded with calculi. One patient died from hemorrhage resulting from ulceration of a branch of the renal artery. In one of the successful cases the kidney had been opened some months before without finding any foreign body.

An early diagnosis and an early removal of the stone are the two most important elements in the successful management of calculus in the kidney. Unfortunately it is more difficult to establish the former, than it is to carry out the latter. Repeated attacks of renal colic with long continuance of purulent or bloody urine without evidence of sufficient disease in the lower urinary tract to account for these symptoms, point strongly to a renal calculus. Yet under similar conditions the kidney has been opened about thirty times, as reported by Treves, and no foreign body was found. These facts show the difficulty of making a correct diagnosis at a time when it is the most important that it should be made, to wit, in the early stage of the disease or before irreparable injury has been done to the organ.

If the symptoms are prominent, persistent, and severe, and if the patient is disabled and rendered unfit to enjoy life by

reason of this disturbance, then an exploratory operation is to be recommended, as being reasonably safe, and as offering chances for a more or less permanent relief. As time goes on it is not too much to hope that experience will enable us to make an earlier and surer diagnosis, and thus to treat these patients with greater success, and with more satisfaction to the surgeon.

So far as the operation itself is concerned, it is an easy matter to open a dilated or enlarged kidney in a thin, spare person. It is a very different thing to expose and incise one of normal dimensions in a stout, fleshy individual without opening the peritoneum. The space between the ilium and ribs is limited ; the kidney lies deeply buried in fat, and often high up behind the ribs ; it may be very movable, difficult to steady, and still more difficult to be pushed up into the wound. The hemorrhage from the external wound is usually readily controllable, but that from an incised kidney may be profuse, and, even if not specially dangerous, it may serve to delay the operation much longer than is desirable.—*Boston Medical and Surgical Journal*, *August* 11, 1892, *p.* 134.

68.—EXFOLIATING CYSTITIS.

By F. A. Southam, F.R.C.S., Surgeon to the Manchester Royal Infirmary.

Exfoliating cystitis is the term applied to a form of inflammation of the bladder, accompanied by a fibrinous exudation upon and beneath the mucous membrane, which, in consequence, becomes destroyed and converted into a slough. Separation or exfoliation of the false membrane formed in this manner then occurs, sloughs consisting of the fibrinous exudation, together with the mucous lining, and in some cases a portion of the muscular coat as well, being thrown off from the inner surface of the bladder.

This condition is most commonly met with in females, as a complication of the cystitis which sometimes follows difficult labour, but it may also occur in males, as, for example, in cases of cystitis secondary to injuries of the spine, and also in severe cases of prostatic disease.

In the case of females, when the false membrane has become detached, it usually becomes expelled per urethram, either *en masse* or in particles of varying size; in males, however, as can be easily understood, its expulsion is not so readily effected ; and two cases are recorded by Liston where the false membrane, being retained in the bladder, and blocking the orifice of the urethra, caused complete retention of urine, necessitating the

performance of suprapubic cystotomy, and the removal of the false membrane through the opening above the pubes.

The general symptoms are those of cystitis, accompanied from time to time by hæmaturia, and also by attacks of retention from the obstruction which the false membrane often offers to the escape of urine from the bladder.

The prognosis in females, when it occurs as a complication of labour, is usually good, for after the separation and expulsion of the sloughs, the cystitis subsides, cicatrisation takes place, and a new lining forms, which supplies the place of the mucous membrane. In males, on the other hand, the conditions which give rise to exfoliating cystitis are usually of a much more serious nature, and of themselves frequently prove fatal.

As exfoliating cystitis is not very frequently met with, the following particulars of two cases, which, by the kindness of my colleagues at the Manchester Royal Infirmary, I had opportunities of observing, are, perhaps, worthy of record.

A female, aged 42 years, was admitted into the hospital under the care of Dr. Lloyd Roberts, with the following history: She was married, and had ten children, the youngest being two years old. She had enjoyed good health until about five weeks before admission, when she began to be troubled with bearing-down pains, for which she consulted a medical man. He introduced a Zwanke's pessary, and shortly afterwards she commenced to suffer from irritability of the bladder, micturition becoming painful and increased in frequency, and on several occasions blood was observed to be present in the urine.

When admitted the urine was alkaline, and very offensive, containing a quantity of pus. In addition to the usual symptoms of cystitis she was troubled with incontinence, and experienced great difficulty in micturition. She underwent the ordinary treatment for cystitis, the bladder being washed out daily with boric lotion, but it was noticed by the nurse that the introduction of the catheter was not so easy as usual, a slight obstruction being often encountered just as it entered the bladder. Four weeks after her admission into the hospital she was suddenly seized with severe pain in the lower part of the abdomen, and after much straining she passed per urethram, as she lay in bed, a complete cast of the bladder. I examined her a few hours subsequently, and found the urethra so dilatable that the finger could easily be introduced into the bladder without the aid of an anæsthetic. On exploring its interior the entire surface was found to be roughened and eroded.

After the expulsion of the cast or false membrane the cystitis gradually subsided, and she left the hospital at the end of six weeks, having recovered complete control over the bladder, the urine having regained its normal condition.

The false membrane, which formed a complete cast or mould of the interior of the bladder, was coated over on its inner surface with a deposit of phosphates. It apparently consisted of the mucous lining and a portion of the thickness of the muscular coat, for on its outer surface bundles of muscular fibres were in places distinctly visible.

The second case was that of a male, aged 28 years, admitted under the care of Mr. Hardie, suffering from a dislocation of the spine (seventh cervical vertebra). There was paralysis of both lower extremities and of the abdominal and chest muscles, respiration being almost entirely diaphragmatic. There was also loss of power over the bladder, necessitating the use of the catheter night and morning. Although the usual antiseptic precautions were taken the urine on the fourth morning was ammoniacal, and blood was also present in considerable quantity. After a few days the hæmaturia ceased, but in spite of treatment the urine remained ammoniacal, containing a large amount of pus and thick viscid mucus until death, which took place at the end of a month.

At the autopsy the bladder was found to be somewhat enlarged, and the walls were thickened. The peritoneal surface was inflamed and adherent to the adjacent coils of small intestine. The cavity of the bladder was lined with a loose yellowish white membrane, one-sixth to one-fourth of an inch in thickness, which very readily separated, forming a complete cast of the interior of the viscus. It appeared to consist of the mucous membrane and submucous tissue much thickened and coated over with a deposit of phosphates, for on removing it the subjacent muscular coat was exposed to view.—*Medical Chronicle, January*, 1893, *p.* 230.

AFFECTIONS OF THE SKIN, &c.

69.—ON THE PIGMENTARY SYPHILIDE.

By R. W. Taylor, M.D., New York.

The pigmentary syphilide is seen in three well-marked and quite distinct conditions:

1. In the form of spots or patches of various sizes.

2. As a diffuse pigmentation of greater or less intensity, which sooner or later becomes the seat of lucodermatous changes in the shape of small spots which gradually increase in size. This is the retiform pigmentary syphilide—the *syphilide pigmentaire à dentelles* of Fournier.

3. In an abnormal distribution of the pigment of the skin, in which, owing to the lack of or crowding out of the pigment in places, they become whiter, while the parts involved in the abnormal distribution become darker; in this way a dappled appearance is presented. In this form there is probably no excess of pigment; it is seemingly unequally distributed throughout the tissue expanse. This form has been termed the marmoraceous, from its resemblance to some forms of marble in which there is an intimate interblending of light and darker colours. This marmoraceous pigmentary syphilide is not common, and it is peculiarly liable, by reason of its delicacy of tone and tint, to pass unobserved.

The pigmentary syphilide in the form of spots or patches consists of round, oval, or irregular plaques, which may have sharply defined borders or their margins may be dentated or jagged. Their colour varies from a light-brown *café au lait* to even a quiet deep-brown tint. They are unaffected by pressure and the condition of the circulation. In persons of light and delicate skin they may be very faint in tint and perhaps only perceptible in oblique light.

In this form of pigmentary syphilide it is common to see the uneven distribution of the pigmentation; sometimes the colour is deeper at the margin. Commonly there is no involvement of the intervening skin, though sometimes the hyperchromatous condition produces the illusion that the unaffected skin is whiter than normal. These pigmented spots may remain unchanged and indolent for months, particularly in cold weather. In the course of time they show evidence of fading and they slowly disappear. The process of involution may begin at the margin and extend centripetally, or it may take place in the whole morbid area. In some cases colourless patches are left after the disappearance of the pigmentation; there is then produced a secondary or pseudo-leucoderma. Now, if a case is seen only in this stage, I can well understand an observer reaching the conclusion that the process was an atrophic one; consequently it is easy to see why so much is written upon syphilitic leucoderma and syphilitic vitiligo. These expressions clearly show the want of a full knowledge of the disease, and that the observer has only acquainted himself with its stage of decline. In most cases the skin retains its normal appearance after the full involution of this syphilide.

The second form of pigmentary syphilide—the lace or retiform variety—is far more common than the previous form. More or less slowly and even rapidly the sides of the neck become discoloured, the tint being that of *café au lait*, or even of decided yellowish brown. The most common site of this eruption is on the sides of the neck and perhaps on the back of

the neck. The patients usually say that they noticed, or were told, that their necks were getting or had got dirty. Intelligent and observant patients will very often distinctly state that their trouble began with a browning of the skin, and they will state positively that there was no intermingling of white spots. From the neck this eruption may extend more or less extensively over the trunk, mostly anteriorly or down the arms. I have never seen it go up on the face. In many cases this eruption passes unnoticed and may be attributed to the action of the sun, to irritation, or even to uncleanliness. When the pigmented patch has involved more or less of the sides of the neck a peculiar change will be observed in it—namely, the development of whitish spots which may be taken for leucoderma. Scattered irregularly over the pigmented surface close observation will show a few or many minute white specks, which in a short time, particularly in hot weather, will be large enough to present definite shapes, which may be round, oval, linear, or irregular. These white spots gradually grow, and in many instances the neck is largely covered with them before the patient knows of any change having taken place. They then say or are told that their necks are growing white. Undoubtedly many a doctor, upon this information being given him, has concluded that he has a case of leucoderma before him. Sometimes the white patches are distinctly lighter than the normal skin; in other instances the contrast between dark and light is illusory, and there is really no difference in colour between the so-called leucodermatous patches and the unaffected skin. The white spots may or may not be sharply marginated, in some cases the line of margination being clear and sharp and in others indistinct. I have never seen the thin, filmy, superpigmented area around white patches of true pigmentary syphilide which we see so clearly and so commonly at the circumference of patches of leucoderma or vitiligo, as it is called. This point, in my judgment, is of diagnostic import, and is explained by the pathology of the disease to be considered further on. The tendency of the white spots to extend necessarily means the diminution of the brown background. In this way is produced a dappled appearance, which warrants the name for this eruption at this time of the *dappled syphilide*. Toward the final stage of the disease the preponderance of the white spots leaves only round, oval, or wavy lines or strands of brown pigment, which gives the appearance of lace with large meshes, the interstices being formed by the white spots, which are round, oval, gyrate, linear, or irregular. In this way the skin in the course of months, and in some cases of a year or more, gradually seemingly returns to its normal condition. In the study of these cases I have sometimes seen during the activity of the process a mild

and ephemeral hyperæmia, which might easily have escaped observation, and the question suggests itself to my mind whether or not a mild form of congestion may precede the hyperpigmentation.

The third or marmoraceous form of pigmentary syphilide is by far the least common. Its mode of invasion is slow and aphlegmasic, and there is little or no hyperpigmentation. The natural colour of the skin, in spots of irregular size and shape, becomes white, while the margins, which are hazy and indefinite, become browner than normal. It seems to be a displacement of pigment resembling strikingly some delicate varieties of marble in which there are imperceptibly blended shades of white and very light black. In my experience, this form is always seen on the sides of the neck, and it does not show a tendency to extend. It can only be found upon persons of delicate skin, and very often only by close observation. It slowly disappears and the skin is left in its normal colour.

In the light of its clinical history and of its pathological anatomy, it is, I think, now clearly proved that this syphilide begins as a true specific superpigmentation which is the essential feature of the morbid process, and that the subsequent leucodermatous changes are those of a degenerative nature, consequently dependent upon and secondary to the initial dischromia. It can therefore be seen how illogical and incorrect it is to call this affection syphilitic leucoderma, or syphilitic vitiligo.—*New York Medical Journal, February* 18, 1893, *p.* 177.

AFFECTIONS OF THE EYE AND EAR.

70.—TREATMENT OF THE NOSE AND THROAT AS A SOURCE OF MIDDLE-EAR DISEASE.

By Thomas Barr, M.D.

The extraordinary interest developed of late years in diseases of the nose and throat has led to the greatly extended use of remedies applied to those regions. Nasal irrigations, by means of the douche, syringe or simple sniffing, are not only much more frequently prescribed by medical men, but it is now no uncommon thing for patients to resort to them without medical advice or guidance. Cauterisation of the interior of the nose, by the galvanic cautery, chromic acid or other corrosive substance, has become almost the routine practice of the

numerous rhinologists who now devote themselves to this region ; while operations upon the nose and naso-pharynx more or less severe have become of striking frequency. That, on the whole, good to humanity has resulted from this great activity cannot be doubted. Unfortunately, however, it often happens, from the imperfection of human agency, that with improved and increased methods of treatment there is involved the danger of doing mischief. The middle ear, from its intimate connection with the nasal channels, being in fact an offshoot from these, is specially exposed to danger from energetic nasal treatment. It may therefore be useful at the present time to draw attention to this source of danger to the middle ear, and to the precautions calculated to avert such danger.

Nasal Irrigations.—I shall consider first the risks attending the use of irrigations to the nose, such as Weber's douche, the syringe and simple sniffing. Since the case reported by Roosa of New York in 1869 of acute otitis media, followed by pyæmia, caused by Weber's nasal douche, many instances of acute purulent inflammation of the middle ear arising in this way have been placed upon record. Attention has also been drawn to this source of danger by Knapp, Elsberg, von Tröltsch, Politzer, Weber-Liel, Berthold, Guye and others. My own experience has taught me that the entrance of liquid into the middle ear through the Eustachian tube during the use of the nasal douche or syringe, is a very common occurrence. This accident is fortunately, however, by no means always followed by inflammatory mischief. Patients, especially children, frequently mention that they experience pain in the ear during the act of syringing, although no real mischief results. On the other hand, serious mischief to the ear may ensue. Purulent disease with all its possible consequences, or simple catarrh with temporary or permanent injury to the hearing, may without doubt be a consequence. While many of the cases of purulent middle-ear disease excited in this way have been mild and short in duration instances are, in my experience, not very uncommon in which the disease bas assumed a persistent and even serious character.

What are the conditions which favour the entrance of liquid into the middle ear during the use of the syringe or douche? Structural peculiarities in the nasal passages and Eustachian tube, existing naturally or induced by disease, are probably the most important factors. In children, for example, owing to the smallness of the naso-pharyngeal space, the width and shortness of the Eustachian tubes, their limited control over the muscles of deglutition, there is more likelihood of liquid injected into the nasal passages finding its way into the middle ear. Likewise in adults, whose Eustachian tubes have been rendered

abnormally patent by atrophy of the mucous membrane, or where the muscular mechanism of the Eustachian tube has been impaired, the resistance to the passage of air or liquid is much diminished. In those conditions liquids injected into the nasal passages or drawn in by the patients, however carefully, are apt to find their way into the tympanic cavity. Of these structural peculiarities, however, the partial or complete impermeability of one or other nasal passage or of the cavity of the naso-pharynx is the most fruitful source of accident. Such impermeability is common, and may be due to deflection, exostosis, or enchondrosis of the septum, to hypertrophic or other swelling of the turbinated bodies, or to postnasal growths. When one of the nasal passages is thus closed and liquid is injected into the opposite nasal passage by a syringe, the nozzle of which fits tightly into the orifice of the nose, a passage of liquid into the middle ear will be an almost certain result. The employment of strong force, either from too great height of fall in the case of Weber's douche or from excessive pressure upon the piston in ordinary syringing, is always improper, but is especially mischievous when there exists any of those forms of obstruction. It is to be carefully noted that in any case, even when no structural peculiarity exists and when the syringe is used with every caution, the performance of the act of swallowing during the passage of the fluid through the nasal passages greatly favours the entrance of the liquid into the middle ear. Another danger is that the liquid still remaining in the crevices of the naso-pharynx, shortly after the injection, is often impelled into the middle ear if the patient blows the nose vehemently or sneezes.

I have said that liquid frequently finds its way into the middle ear without any injurious effects. What are the circumstances which determine injury when liquid finds its way into the middle ear? A middle ear predisposed to inflammation, either through hereditary tendency, a past attack or a present chronic disease, is of course much more apt to be injured by the entrance of the liquid. The force by which the liquid is propelled into the ear must to some extent determine the effect. The character of the fluid, however, especially in regard to temperature, strength and purity, is a still more important factor. A proper degree of warmth is essential to safety: we know that cold liquids injected into the ear through the external auditory canal are apt to prove injurious; they must prove at least equally injurious when forced through the Eustachian tube. The habit of drawing or sniffing cold water into the nasal passages, indulged in by some persons with the idea of curing or preventing cold in the head, is probably responsible for a number of middle-ear inflammations. This method of irrigating the

nose is no doubt often mischievous, especially where the Eustachian tubes are abnormally permeable. Irritating solutions finding their way into the middle ear must of course be more likely to excite inflammation than those of a mild character. The *rôle* played by mucus, pus or blood forced from the naso-pharynx into the middle ear is not easily determined, although when accompanied by pathogenic organisms, such as those peculiar to ozæna, diphtheria, scarlet fever and certain forms of nasal catarrh, they must prove most important sources of mischief. When a combination of all these conditions and causes exists in the one case the danger to the middle ear must be great, if not avoidable, and it is probable that such a combination not unfrequently exists.

The Galvanic Cautery and Corrosive Substances.—Let us now consider to what extent the galvanic cautery and corrosive substances—such as chromic acid—are responsible for the production of mischief in the middle ear. Exciting as they do more or less inflammation in the tissues of the nose, it would not be surprising if extensions to the middle ear sometimes took place. I believe, however, that such mischief, when it does occur, is frequently due to the neglect of certain precautions after the cauterisation. These applications being usually made in the doctor's house, exposure to the air—travelling, it may be, to a distant part—tends to increase the irritation and leads to its extension from, say, the inferior turbinated body, to the Eustachian tube immediately behind. Syringing the nose after cauterisation, when the passage is obstructed from swelling, is apt to force liquid into the middle ear and thus excite mischief. Probably the introduction of micro-organisms along with the applications, such as when the part of the electric cautery near to the burner has been imperfectly cleaned and disinfected, may be the means of exciting suppurative inflammation in the middle ear. When the cautery is applied near to the mouth of the Eustachian tube the danger is of course greater. Hence cauterisation of the naso-pharynx is particularly apt to injure the middle ear. Galvanic cauterisation of the pharynx granular pharyngitis may likewise be followed by acute purulent inflammation of the middle ear. Such a case is within my knowledge. Gruber also remarked at the meeting of the British Medical Association in Nottingham that the galvanic cauterisation of the wall of the pharynx may, by injury to the muscular fibres beneath, damage the muscular mechanism of the tube. In regard to the use of chromic acid I have not yet seen a case of middle-ear mischief from the use of this corrosive, but, judging from the irritation and swelling of the mucous membrane usually produced by this substance, implications of the middle ear might occasionally be expected. When the galvanic cautery

or chromic acid has to be applied to the nasal mucous membrane too great care cannot be taken to avoid exposure to cold.

Operations on Nose and Throat.—Let us now consider to what extent the greatly extended use of operations on the nose and naso-pharynx may be regarded as a source of mischief to the adjoining cavity of the middle ear. The removal of adenoid vegetations from the naso-pharynx has become of late years one of the commonest of operations. As an operation most frequently performed in cases of defective hearing I have had very considerable experience of it. While I have no doubt seen a considerable number of cases in which, after the removal of these growths, a purulent inflammation affected one or both middle ears, I have not had experience of any case in which this assumed a serious character—none so serious as we have seen to happen after the nasal douche. I have, however, seen at least one case in which permanent aggravation of deafness followed this operation, where a chronic adhesive catarrh of the middle ear existed. I think in this form of deafness we should be very cautious in operating upon the naso-pharynx or nasal passages. While the ordinary exudative catarrh may be very much benefited in this way, there is, no doubt a fear of doing more harm than good in these adhesive or hypertrophic forms of catarrh. Most aural surgeons have seen cases of inflammation of the middle ear following the removal of tonsils and nasal polypi. The extent to which operations upon the nasal septum and turbinated bodies and the forcible mechanical distension of the nasal passage by instruments constructed on the principle of the glove stretcher, so frequently performed of late years, affect the middle ear prejudicially has not yet come to light. It is fitting also to refer here to the possibility of exciting inflammation of the middle ear in cases where the posterior nares have been plugged in consequence of bleeding from the nose. Serious mischief has arisen in such cases from the retention of the plugs too long and the production thereby of septic inflammation in the middle ear. One case of death is reported from this cause, owing to cerebral complication. In considering the liability of the middle ear to receive injury from any of these forms of nasal treatment, it is to be remembered that here, as in all organs of the body where the vulnerability of the organ is increased by hereditary weakness and by previous or existing disease, the action of a local cause, be it the entrance of liquid into the ear or the production in the neighbourhood of the middle ear of inflammatory irritation or septic mischief, is fraught with the greatest danger. I would venture to urge upon rhinologists the importance of giving due attention to these considerations when treating the nasal regions.—*The Lancet, December* 17, 1892, *p.* 1378.

71.—ON PERFORATION OF THE MASTOID PROCESS IN CASES OF ACUTE OTITIS MEDIA DUE TO INFLUENZA.

By Adam Politzer, M.D., Professor of Otology in the University of Vienna.

Purulent inflammation of the middle ear appears to occur with exceptional frequency in connection with influenza, and I am inclined to attribute this fact to direct infection by the passage of pathogenic organisms into the middle ear from the pharynx. The affection is in many cases limited to the lower part of the Eustachian tube, without reaching the cavity of the tympanum. In other instances, however, a catarrhal or suppurative inflammation of the middle ear is observed, which is apt to prove much more dangerous than ordinary cases of acute otitis media.

During the last two epidemics in Vienna the complication of acute middle ear inflammation with the formation of mastoid abscesses was remarkably common, and in a considerable number of these cases perforation of the mastoid process became unavoidable.

With regard to the symptoms indicating abscess formation in the mastoid, I attribute a particular importance to the following: (*a*) Spontaneous pain, seldom intermittent, in the mastoid process, with great tenderness on pressure over its middle and lower part. (*b*) Increased temperature over the same region as compared with the healthy side. (*c*) As a general rule, no notable cutaneous infiltration is perceptible, but redness and swelling may be observed where external periostitis is present. (*d*) The occurrence of fever is of special significance. In some cases the temperature is but slightly raised, but it usually reaches 100° or 102° F., though this is seldom exceeded. As in most other inflammatory affections, the greatest febrile exacerbations occur in the evening. In exceptional instances prominent swelling and fluctuation was noticed in connection with discharge of an abscess through the bone externally.

The development of abscesses in the mastoid in many cases occurred together with purulent accumulation in the tympanic cavity, without perforation of the drum membrane. In these, paracentesis of the membrane was required, as well as the opening of the mastoid process. In the majority of cases operated upon, however, perforation of the membrane took place before symptoms of abscess formation became prominent. While the abscess remains an abundant discharge from the ears is present, usually blenorrhœal in character. Sometimes reabsorption of the abscess and spontaneous cure results, as in certain cases of

common otitis media. I observed this much more frequently during the last than in the preceding epidemic, a fact pointing probably to the milder form of the latter. As a rule, however, the morbid process continues in spite of rigid antiphlogistic measures, and leads to destructive caries, the arrest of which demands timely operative treatment in order to prevent the occurrence of the most grave complications. There is no doubt that the lateral sinus may also become implicated. In one case, I found upon opening the mastoid process a cavity filled with large granulations and bony detritus, and limited internally by the exposed venous sinus. The abscess cavity ultimately became obliterated by granulation tissue, and complete recovery ensued. In the absence of an operation, the disease would probably have extended so as to involve the intima, and have ended fatally by setting up phlebitis of the sinus and pyæmia.

The treatment of mastoid abscess will be influenced by the duration of the affection, the degree of fever, the intensity of the subjective symptoms, and the general condition of the patient. At an early period, when pain has been present only two or three days, the inflammatory process will sometimes recede by painting over the surface with tincture of iodine, by inunction with unguentum cinereum, or by the application of cold by means of Leiter's apparatus. The effect of these remedies is greatly assisted by washing out the tympanic cavity with a lukewarm solution of sterilised water, or a one to two per cent. tepid solution of boric acid. With amelioration of the local symptoms, the purulent discharge from the ear also diminishes, and after the employment of these measures for some weeks a cure is obtained.

If, however, the febrile condition, together with the local symptoms just described, should have continued for more than eight days; or, if in more recent cases, active antiphlogistic treatment should afford no relief either in respect of the local symptoms or of the fever, then it will become necessary to resort to the procedure of making an opening in the mastoid process. Immediate interference is indicated in these cases, since not only may extension of the morbid process in the bone involve vital regions, but the operation being, as I believe, in no way dangerous, it may be performed without hesitation.

The following is the manner in which it is carried out. The external parts having first been thoroughly cleansed with an antiseptic solution, and anæsthesia having been induced, an incision four to five centimetres in length, and slightly curved, is made through the skin, half a centimetre behind the attachment of the concha, and reaching almost to the upper limit of the mastoid process. The periosteum is then divided, and separated from the bone with an elevator, so as to expose

the middle and lower part of the process. The lips of the incision being now held apart with hooks by an assistant, the cortical layer of the bone is removed to the depth of half a centimetre to one centimetre by means of a gouge six millimetres in breadth, which is to be held obliquely to the surface. In the course of the process one comes across the purulent focus, situated sometimes immediately beneath the cortex, sometimes at a depth of half a centimetre to one centimetre only from the surface, and filled up with pus and granulations. In some cases I have found several small abscesses, either isolated or in communication with each other. After having sufficiently enlarged the opening in the bone, the abscess cavity must be scraped out with a sharp spoon so as completely to remove the surrounding softened and infiltrated bony tissue. The procedure is apt to be accompanied by somewhat active hemorrhage, which may be arrested by plugs of sublimate gauze. In no case operated upon, except one, could I ascertain the existence of any communication between the abscess and the antrum. The abscess cavity should be thoroughly irrigated with a one per cent. solution of corrosive sublimate, and afterwards filled with iodoform gauze. Finally, the external incision is to be partly closed by a couple of sutures above and below, and a suitable bandage applied. The latter need not be renewed before six or eight days if the case goes on well.

The beneficial effect of the operation is in most cases shown by a rapid decrease of temperature, which by the next day generally falls to normal, or even lower. The discharge from the ear also becomes notably less in a few days, and disappears with the healing of the cavity, sometimes in a week, sometimes not before a fortnight. In one case only did a case end fatally after operation. This was during the epidemic of 1890, and was of a very severe character from the first. In the most recent epidemic no fatal termination was observed. The length of time necessary for complete cicatrisation depends partly upon the size of the cavity left after the operation, and partly upon the extent of disintegrated tissue which may, perhaps, remain behind. Under normal circumstances, the wound takes three or four weeks to heal when dressed with iodoform gauze, the cavity filling up with granulation tissue. With a superficial abscess, leaving a shallow cavity in the bone, I consider it advisable at once to bring together the edges of the incision, leaving, however, a small space below for the passage of a thin strip of iodoform gauze. If no suppuration should take place, the lower opening may be allowed to close up after a few days, providing the healing process goes on in a normal manner. With more deeply situated abscesses, its duration may be shortened by the adoption of Gruber's recommendation to insert a suture at a later period.

I wish, in conclusion, to point out the simplicity of the operation, a knowledge of which is of the greatest importance for the surgeon, especially in country practice, where, if danger threatens, immediate interference becomes necessary.—*British Medical Journal, December* 31, 1892, *p.* 1427.

72.—ON PAIN IN OTITIS MEDIA AND ITS TREATMENT.

By B. A. Randall, M.A., M.D., Clinical Professor of Ear Diseases, University of Pennsylvania.

It is essential to remember that tympanic inflammation is present in the great majority of these cases; its origin is almost certainly in the nose. A coryza, past or present, is always to be suspected, investigated, and treated, if we wish to combat the affection rationally; the other ear is to be examined, as all too probably implicated in less degree, or, if healthy, as furnishing at least some index in configuration and antecedent condition to what we should find on the painful side. Retraction, injection, scarring, or chalk deposits may throw light upon the present condition of the other ear and furnish records contradictory to a misleading negative history. Mere thoughtful inspection will often give valuable facts, such as redness or œdema about the ear, or the unsymmetrical prominence of one ear, suggestive of mastoid swelling; and palpation may reveal local heat, tenderness, or fluctuation, without being really noticed by the patient. The body temperature should not be overlooked, since a notable rise in it may be expected in the adult, as, of course, in the child, if the affection be important. In the stricter inspection the brow-mirror and good illumination are very desirable as rendering diagnosis surer, quicker, and gentler. The ear speculum, which too many regard as essential to the study, may often be dispensed with, and a sufficient study made without it; and it should be employed only when the attempt to avoid its use has failed. Warming it, if of metal, by friction or the flame, may mitigate the discomfort of its touch. It should be introduced with the canal straightened and opened by traction and the minimum of pressure used to place and retain it in position, although as an exception it may be used as a dilator. The condition of the meatus walls should, of course, be observed before its introduction, that swollen, tender points may be avoided, flakes or wax masses not displaced into obstructing positions, and the speculum correctly directed at the first. The light spot upon the drumhead should be the first landmark sought, since its presence and

normal triangular form would assure us at once of the polish and natural position of that part at least; then the short process and handle of the malleus should be studied, as telling of any congestion or of any bulging to conceal them. So, too, in the nose, posterior rhinoscopy may be impracticable, even for an expert, yet the condition be easily deduced from the appearance of the pharynx; and the anterior rhinoscopy, with an aural speculum or none at all, may give satisfactory data. Spraying of the nares with a mild cleansing agent, like Dobell's solution, should be expected when the practitioner is called to the case, and the atomiser taken, altogether with the Politzer bag, syringe, and forehead mirror. Only after some such cleansing, which a mopping of the pharynx vault and tube-mouths with the curved cotton-carrier passed above the uvula will complete, is it wise to use the tympanic inflation, either for its diagnostic or its therapeutic effect. As to this measure, denounced as improper by some authorities, I can hardly be too emphatic in commending its careful employment. Thus only can we establish a diagnosis in some cases, while in so doing we may obtain great and real relief for the sufferer. Violent distention of an inflamed drum-head would, of course, be painful, and perhaps harmful; a thinned, distended membrane might be ruptured needlessly, and, if the naso-pharynx be unrelieved of a septic condition, deleterious matter might be forced up into the tympanum of either side. Yet fair cleansing before it, and gentle care in its use, exclude these risks; while it will often establish drainage by the natural Eustachian channel, rupture in the safest way a drum-head that needed opening, or evacuate through a small perforation a tympanum which could not otherwise be emptied. Even its careful use may give great temporary pain; but this may be more than compensated by the later relief, and our other methods of treatment can generally promptly end this suffering.

The best single measure at our command in treating the aural condition is usually hot syringing; for, while capable unaided of doing much to relieve at once the pain and its inflammatory cause, it fittingly combines, with the other measures, to meet all the needs of the case. As a means of cleansing the canal of epidermal exfoliations or anything else that obstructs our inspection of the walls or drum-head, it is probably, in all hands, the gentlest and best. To combat the vascular engorgement and stasis, whether of canal or tympanum, its stimulating and constringent effect can hardly be surpassed; and as a means of allaying the pain, that may be the most prominent and urgent symptom, it is surer and quicker than almost all others. Many medicinal drops are in vogue, but unless *warmed*, they generally fail in their purpose; heat may be well applied also by dry means, like the hot-water bottle or the salt-bag; cotton upon the

probe may serve excellently to clean out the auditory meatus: yet in all lines the one measure of hot syringing can rival, if not surpass, the combined value of the other three. Its temperature must be carefully adjusted to the purpose and the tolerance: "as hot as can be borne" is a good rule, flexible rather than vague, and adaptable to various cases. Gentleness in its employment is always called for, especially if used to allay pain, and the slowness of the flow greatly influences the tolerance which may be obtained for very hot water. The little bulb with a soft-rubber tip, generally obtainable, which can be safely passed a short distance into the meatus, is very useful for this hot douche; but any syringe can serve, and at need the bulb of the atomiser can be used for this douching, as well as in place of the Politzer bag. A pint or more of water can be used with advantage, and then the ear drained and lightly mopped dry; then a flake of cotton in the canal or a warm, dry compress over the entire ear region will protect against chilling. A child will usually be found in bed; an adult had better be put there; for needless as such precaution may seem to a busy man, it may make all the difference as to his escaping an imminent suppuration of the tympanum and mastoid. Aconite or similar general measures may be called for, a laxative or even a purge may be needed, and the control of pain may be aided by leeching or instillation of morphine and atropine. Cocaine is usually inferior in value, though it ought to deplete and anæsthetise the tissues, and either of the other drugs has more lasting effect; but combinations are perhaps better than the single medicament, of which water is the best vehicle. Oils, glycerine, or tinctures have much more disadvantage than value, common as is their employment. Blood-letting in the incipiency or very acme of the congestion is of the greatest value to relieve pain and avert serious results; but coming a little later, it rather favours vascular relaxation and retards resolution. Poultices are dirty and incomplete means of applying heat; need frequent changes, if they are not to favour suppuration, and will often macerate the external parts, with small gain to the deeper seat of trouble. Counter-irritation has similar drawbacks, unless it be a mere placebo of iodine stain; and a host of other popular means, while rarely devoid of value, are certainly of limited usefulness and considerable harmful potency.

In conclusion, then, it may be repeated that ear-ache is most often due to acute tympanic inflammation arising from a naso-pharyngeal condition which demands treatment. Cleansing and detergent sprays and post-pharyngeal painting with astringents can control this and relieve any referred pain from this location. The hot syringing of the ear will give any needed cleansing, allay the local pain, and, by reducing the inflammatory

congestion, help on the resolution. Protection, local and general, with medicinal treatment of general symptoms, will generally give such prompt and real relief that the host of other remedies may remain as an unemployed reserve. The physician summoned to a case of ear-ache can generally leave his morphine and cocaine at home, if he will take his brow-mirror, a syringe, and an atomiser.—*The American Journal of the Medical Sciences, February*, 1893, *p.* 129.

73.—ON HYPERTROPHIC AND ATROPHIC RHINITIS.

By A. Marmaduke Sheild, F.R.C.S., Assistant-Surgeon to Charing Cross Hospital.

Hypertrophic rhinitis probably originates in repeated attacks of inflammation due to cold and dust; this increases the serous exudation from the nose. In a healthy nose some ten oz. of serum mingled with mucous passes into the nose during the day. If the mucous membrane becomes infiltrated and thickened, there is a hindrance to the escape of serum, and hence results a kind of œdema of the mucous membrane from the accumulation of serum in it, and parts of it acquire great thickness or density. Over the ends of the spongy bones, when there is much vascular tissue, the mucous membrane may swell to a considerable extent. This condition is very commonly mistaken for polypus of the nose. It can be distinguished from polypus by finding that the growth is sessile when touched with the probe. It is also of a pinkish colour, very different from the gelatinous aspect of the common mucous polypus. The affection is common in both nostrils. There is difficulty in breathing through the nose, and this is worse in damp weather, and often shifts from side to side; severe attacks of sneezing are met with, and a copious serous exudation runs from the nose. The pharynx is not uncommonly inflamed, and streaked with mucous. Hypertrophic rhinitis is an exceedingly common complaint, and as a rule does not need any operative treatment. If you give the patient a simple nose spray of cocaine, such as five or six grains of cocaine with a little bicarbonate of sodium and rose water, the swelling of the nose, the discharge, and the general discomfort will soon be lessened. Tonics, especially iron and arsenic, have seemed to me of great value. Sometimes the swelling is so great as almost to close the nose and cause serious inconvenience, then operative treatment may be necessary. Several authorities invariably remove the lower turbinate bone. This in my opinion is quite wrong, because the disease is one of the mucous membrane and not of the bones, and indeed it has seemed to me that some of

the operative treatment devised for this affection is worse than the disease. The better plan is to apply the galvano-cautery to the thickened membrane, or better still pure chromic acid. This can be applied in various ways. I fuse a little of it on the end of a suitable probe, and under cocaine push it into the swelled mucous membrane in various situations. Large masses of growth on the ends of the turbinate may be removed. The best instrument for the removal of such localised hypertrophies is the cold wire snare. A steel wire loop, smartly pulled home, quickly removes the mass, and chromic acid may be applied afterwards.

Atrophic rhinitis consists of atrophy of the mucous membrane, resulting, it is said, from chronic inflammation. The true pathology of this disease seems to me singularly obscure. All we know is that the mucous membrane of the nose becomes attenuated, glazed, and dry, and the glands atrophic. It is covered with green offensive crusts of inspissated discharge. The serous discharge gets dried up; the pharynx is usually also glazed, red, and dry, and the odour horrible and offensive. This is a most important disease because it is one great cause of the symptom known as ozæna, and such a case is quite commonly termed one of "diseased bone."

This affection is easily diagnosed by the characteristic offensive odour, and the presence of a very dry nose with abundant greenish crusts deposited about the mucous membrane. It is often greatly relieved, seldom quite cured, and tends to improve after the age of twenty.

The treatment is simply a matter of cleansing the nose with warm alkaline and antiseptic solutions, until the crusts are loosened, when their removal may be expedited by forceps.

There are a variety of nasal douches and sprays, and they all have their advantages. The fear of affecting the ear by them need not be entertained. The persistent use of one of the douches is essential, for it is not until the nose is well cleansed that other treatment can be commenced. An excellent local application is finely powdered iodoform or iodol. These powders can be applied on pledgets of wool and well pushed with the probe into the passages. A piece of fine silk should be attached to each for removal. Two or three "packings" done in this way will be most efficacious. Every morning the patient should wash his nose through with the warm douche containing dilute carbolic acid and bicarbonate of sodium, which are as good as anything. Powdered borax and soda is another favourite prescription of mine, or these and similar powders may be used as snuffs. The question of syphilis should receive close attention, and a tonic treatment is usually called for. This disease is, I believe, incurable, but it can be immensely relieved by well-conducted treatment.—*The Practitioner, April*, 1893, *p.* 243.

74.--OPERATION FOR REMOVAL OF THE STAPES.

By Clarence J. Blake, M.D., Professor of Otology, Harvard Medical School.

The question of the removal of the stapes in the human subject with a view to an improvement in hearing is one which has been gradually approached both in this country and in Europe through observations upon the effect of operations in the middle ear undertaken for the purpose of increasing the mobility of the sound-transmitting apparatus or of removing such obstructions to the passage of the sound waves as might have occurred as the result of previous disease of the middle ear. These operations have included, from a very early date, incisions of the membrana tympani, and its partial or entire removal, myringotomy, myringectomy, divisions of adhesions or folds, synæchtomy, plicotomy, tenotomy of the musculus tensor tympani, and removal of one or all of the ossicula.

The latter operation when done in a case of suppurative disease of the middle ear, either because of existent caries of the ossicula themselves, or because their removal is necessary to permit access to the carious walls of the tympanic cavity and to facilitate drainage, comes under the head of an ordinary and justifiable surgical procedure.

In the case of non-suppurative disease of the middle ear with fixation of the ossicular chain, as the result of thickening of the investing membrane and of changes in the articulations and about the insertion of the stapes the question of surgical interference assumes a different aspect, since it includes the invasion of an aseptic cavity and indirectly the interference with an apparatus devoted not only to the perception of sound but also to the maintenance of equilibrium, and is done, not because of an already existent surgical necessity, but with the view to the improvement of a condition, and should not therefore be undertaken without a full appreciation of its possibilities for better or worse nor without complete antiseptic precautions.

The removal of the membrana tympani, malleus and incus, as proposed by Kessel, an operation which has been much exploited in this country as a remedy for extreme deafness, vertigo and tinnitus aurium in cases of non-suppurative disease of the middle ear, not only offers an unnecessary degree of violence to the middle ear but is unscientific in the sense that it leaves untouched that portion of the ossicular chain, the stapes, which has been justly denominated the key to the labyrinth; experience also indicates that the improvement in hearing in the cases so operated upon has been due, in the great majority of them, to the mobilization of the stapes incident to the removal

of the two larger ossicles rather than to the removal of an obstruction presented by these bones themselves, for unless the stapes itself be mobile removal of the membrana tympani and the other ossicula must be in a measure ineffectual. The theoretical objection to interference with the stapes, on the ground that disturbance of intra-labyrinthine pressure would result in more or less disturbance of equilibrium, has at various times been met in the past by practical experience at the hands of different observers in cases of mobilization of the stapes, and of accidental removal of the stapes in the human subject, and recent experiments on the removal of the columella in birds show that vertiginous symptoms are not evoked unless the labyrinth is unnecessarily interfered with. At the same time in performing the corresponding operation on the human subject the question of the possible after-effect, in the more or less protracted vertigo should always be considered.

The operation of stapedectomy, to give it a distinctive name, or of incudo-stapedectomy, in case it is necessary to remove or displace both the incus and stapes is, under favourable circumstances, a very simple one, and easily performed under the necessary conditions of a good illumination, proper anatomical knowledge, and a trained sense of touch.

The instruments need be but of the simplest, and such as are found in any ordinary aural clinic, namely, a paracentesis needle, an angular knife for division of the articulation of the incus and stapes, a small hook, preferably blunt, and a small pair of curved forceps, elaborations of these instruments being added according to the demand of individual cases or the choice of individual operators.

The simplicity of the operation itself does not imply the permissibility of any lack of precaution as regards antisepsis or extent of the interference with the tympanic cavity, in both of these respects every care should be taken and the course of the operation as originally planned and as I have so far practised it may be briefly outlined as follows, it being understood that the ear to be operated upon has been carefully tested as to its hearing power, and carefully examined with reference to the position of the membrana tympani and ossicula so far as ascertainable and the external auditory canal thoroughly washed and scrubbed with a bichloride solution on a cotton-tipped probe. The hands of the operator should be thoroughly washed and dipped in bichloride solution before the operation and in addition to the instruments and a number of cotton-tipped probes, there should be provided a saturated solution of boric acid in alcohol and a two per cent. solution of cocaine sterilized, the former for dipping the instruments before using, and the latter for checking congestion and bleeding.

The patient having previously been etherised, preferably in a sitting position, the incision of the membrana tympani is made with a paracentesis needle from a point at the posterior border of the membrana tympani, and carried upward and forward closely following the periphery until the point of insertion of the posterior ligament of the short process of the malleus is reached, and is then carried downward along the border of that ligament and for a short distance down the manubrium mallei, or if preferred may be made in the reverse direction, the flap so formed falling outward by its own weight and affording a clear view in the great majority of cases of the incudo stapedal articulation; the advantages of this form of cut, the same which I have previously used in the operation for simple mobilization of the stapes, in preference to either the semilunar or the triangular cut, and which is a modification of that used by Miot, are evident on examination in the temporal bone of the relationship which the superior posterior periphery of the tympanic ring bears to the long axis of the fenestra ovalis when viewed from the centre of the auditory meatus, and also on consideration of the fact that it affords a broad field for examination of the stapedal region and may be extended downward posteriorly to include the round window, adhesions or cicatrices, about which are often matters deserving consideration and interference.

Hemorrhage from the upper edge of the cut is easily stilled by the use of the cocaine solution on a cotton-tipped probe; and the next step in the operation, division of the incudo-stapedal articulation or of the tendon of the stapedius muscle is effected by means of the angular knife or the paracentesis needle.

Where the oval window is in clear view, the division of the joint may precede the cutting of the tendon, the angular knife being carried from behind forward, against the pull of the stapedius muscle for this purpose; where, however, the stapes is less accessible, the division of the stapedius muscle should precede disarticulation.

So soon as the union between the incus and the stapes is divided, the counterbalancing weight of the body of the incus above its axial line of longitudinal suspension, a proportion of eighteen to seven, throws the body of the incus inward, and its descending process correspondingly outward and forward away from the stapes, while, if the stapedius muscle is intact, the head of the stapes released from its attachment to the incus, is pulled forcibly backward, as shown by Eysell, toward the posterior border of the stapedal niche; under these conditions unless the anatomical relations be such as to leave the stapes plainly in view; division of the stapedius tendon is much more difficult than if undertaken before the section of the articulation.

The concluding step in the operation, removal of the stapes, should be preceded by the division of any adhesions between the stapes and the walls of the niche; and by gentle mobilization. For this purpose the small angular knife used for dividing the articulations may be passed between the crura, and the stapes moved gently backward and forward. The blunt hook is then substituted, inserted under the head of the stapes in the same manner and by means of gentle traction the stapes is, if possible, extracted. The above proviso as to possibility is advisedly made, because it is by no means always possible to remove the stapes entire, a common fracture, where such occurs, being, as shown in experiments on the cadaver, as well as in some of the cases in which I have operated, the breaking of one crus near the head and the other near the base plate of the stapes. Extraction from the oval window and the niche, moreover, does not necessarily imply removal from the middle ear, since a few remaining fibres of the stapedius muscle, or the existence of a firm and undivided reduplication, may serve to pull the stapes when released from its fenestral attachment, backward and out of sight. Under these conditions, I am inclined to believe that, the object in the extraction of the stapes from the oval window having been accomplished, it is better to leave the stapes alone than to make protracted attempts at its discovery and removal.

After the operation, the ear should be carefully wiped dry, and stopped with a pledget of absorbent cotton, which may remain untouched for a period of two or three days, unless there are indications for its renewal and for further cleansing of the ear.

The vertiginous symptoms and the muscular contractions of the upper extremities which I have previously noted as a symptom in cases of mechanical mobilization of the stapes without ether are represented in the stapedectomy cases under ether by an almost invariable slowing of the pulse with, occasionally, twitching of the fingers at that moment when the separation of the stapes from its fenestral attachment causes the greatest variation in the intra-labyrinthine pressure.

That so profound a disturbance of the labyrinthine apparatus, especially where the stapes comes away with difficulty, would cause more or less protracted vertigo is to be expected; and this contingency is one which should always be placed before the patient, for while, as a rule, the vertigo is of short duration, there is always a possibility of its being a serious after-effect, a contingency which can only be properly estimated after a careful observation of many cases.

In conclusion, it may be said that while, as has been stated, this operation is a simple one, this assertion applies only to those cases in which the anatomical conditions, as permitting

free access to the parts, are favourable; otherwise, the operation may have to be done, or at least completed, mainly by sense of touch, and is under these circumstances both protracted and difficult. Taking into consideration the clinical experiments of Lucae and others, it is perhaps needless to say, that, while this operation presents a possible means for amelioration of a class of difficult cases and opens a field for scientific research, long and careful observation and comparison of individual experiences will be necessary to place it upon its true basis of value and to determine the special class of cases to which it is applicable.—*Boston Medical and Surgical Journal, November* 17, 1892, *p.* 469.

75.—THE CHARACTERISTICS AND TREATMENT OF OCULAR HEADACHES.

By Myles Standish, M.D., Instructor in Ophthalmology, Boston Polyclinic.

The characteristics of an ocular headache are that they follow near work or come on during near work. Perhaps the most common form is a headache in the morning after long-continued use of the eyes in the evening, although there had been no headache while the eyes were actually employed. By headache in the morning, I mean a headache upon awakening: I do not mean a headache that wakes the patient. My experience is that a headache sufficiently intense to wake the patient in the night or in the early morning is not ocular, and is generally uræmic. Ocular headaches almost always follow railroad journeys, visits to the theatre, walking in crowded streets, looking intently at the minister in a darkened church, visiting picture-galleries, or any other use of the eyes which requires unwonted exactness of vision. Such a headache is first of all frontal, very often temporal, and with or without pain in the eyes. The next most common place for such headaches is in the occipital region. A headache that is frontal and occipital is almost always ocular. A headache that is confined to the vertex or to the parietal regions of the head is almost never ocular.

Many cases of migraine are ocular in origin, and, when so, have in my opinion distinctly ocular phenomena. Such patients will complain that when reading they were suddenly unable to see but one-half the object, or but one-half of a letter at a time, that this condition continued from ten to fifteen minutes, and was followed by a violent hemicrania, which lasted for a number of hours. Such patients will complain that when a headache is coming on, the rows of books upon a book-shelf would apparently

open and shut like an accordion, or that round objects suddenly whirled. When any or all of these symptoms are prodromic symptoms of migraine, the eyes should be the first point of investigation.

The treatment of ocular headaches is, of course, the correction of the strain, and this in the vast majority of cases means proper glasses; and the selection of these glasses is a matter requiring great care and skill, for a correction that enables the patient to see perfectly well will not relieve the headache unless it also absolutely corrects the error of refraction, and the difficulties of examination in these cases are many. Spasmodic conditions of the ciliary muscles are common, absolutely hiding the true error and in many cases setting up an apparent error of an opposite kind. Therefore, such corrections for headaches and nervous phenomena can only be made under a mydriatic. If, after putting on proper glasses, after a proper examination, a headache which is apparently ocular still continues, it will generally be found to be due to an insufficiency in the balance of the ocular muscles. The vast majority of headaches are done away with by properly correcting the error of refraction, but a few cases remain in which operation upon the muscles is absolutely necessary for relief of the nervous phenomena. The correction of muscular insufficiencies sometimes produces results that are almost marvellous, and the amount of relief is in no way comparable with the amount of the insufficiency as measured by the prism tests.

Another point upon which I wish to speak is this: the fact that a patient sees with rather more than the usual amount of accuracy in distance is not a proof that the eyes may not be the cause of the headaches. In fact it seems to me that a person with a small amount of astigmatism or a small amount of hypermetropia which he can easily correct, and who has rather extraordinary acuity of vision, is the very person who is most likely to suffer from ocular strain.—*Boston Medical and Surgical Journal, October* 6, 1892, *p.* 327.

76.—ON EYE-STRAIN.

By E. C. Seguin, M.D., New York.

Eye-strain, more especially that due to paresis or original weakness of the third and sixth cerebral nerves, produces many symptoms besides cephalalgia and migraine which have lately received so much intelligent attention. The symptoms to which I refer are fully as important as cephalalgia and migraine, but have been generally, if not universally, misunderstood because

practitioners have blindly followed the theoretical teachings of certain authorities.

The chief of these symptoms are: Occipital, suboccipital, and occipito-cervical pain and distress; a sense of stiffness in the occipito-cervical region ("at the base of the brain," as is commonly said); feelings of fulness, pressure, or lightness in the head; sensations of numbness or of formication in the scalp; varying degrees and forms of dizziness (but not true vertigo); inability to read, write, sew, converse, sit at table, to go on the street or into rooms, and even to "think," without supervention or aggravation of symptoms; fear of certain places; insomnia; emotional attacks; pains (differing from migraine) in various parts of the head; and, later, also the multiple symptoms termed neurasthenia. Individual patients describe these subjective symptoms somewhat differently, according to their ability of observation and their facility of expression.

The chief purpose of this note is to endeavour to advance the problem one step further, and to state (from observed facts only) which of the above-mentioned symptoms may be caused by paresis of the third nerves and their muscles, and which by paresis of the sixth nerves and their muscles, apart from the element of refraction, which is also important.

(A.) *Symptoms of Paresis (Insufficiency) of the Third Cerebral Nerves and Attached Muscles.* — Occipito-cervical pain and "distress" are the characteristic symptoms, sometimes the only ones. The pain, diurnal as a rule, and often not appearing until the patient has used his eyes in dressing, eating, or reading, is usually greatest between the occipital bone and the second vertebra, though it often extends from the upper part of the occiput to the fourth or even the sixth vertebra. It is sometimes more a "distress" than a true pain, and is often accompanied by sensations of stiffness and tightness ("as if a hand grasped the neck"). There is never, strictly speaking, neuralgia of the occipital nerves, or objective rigidity as in beginning caries. Tenderness is rarely found, though in women spinal hyperæsthesia (so-called spinal irritation) often coincides. Frequently there is a sensation of weight or downward pressure on the back part of the head, with (usually) intermittent numbness (a "dead" or "wooden" feeling) and formication. In some cases the fulness or tightness (cincture or cap feeling) extends to the whole head.

Apparent loss of power of attention and concentration (volition) is much complained of, even to a degree simulating mental failure. Reading, writing, sewing, piano practice, conversation, even eating, are painful or unbearable; in other words, the symptoms are increased by any act requiring convergence and accommodation.

The prolonged duration of these symptoms, or rather of the strain, may lead to neurasthenia, insomnia, and a curious mixture of hysteria and hypochondria, so that the diagnosis becomes more obscure.

Headache is not rare, but in such cases there are also usually faults in refraction or other factors. Simple asthenopia, sense of fatigue, or pain in the eyes, orbits, brow, or temples, is only occasional, and seldom a prominent symptom. Usually the patient pretends to have strong eyes.

(B.) *Symptoms of Paresis (Insufficiency) of the Sixth Cerebral Nerves and Attached Muscles.*—In contrast with the symptoms of insufficiency of the third nerve apparatus, the symptoms of this condition are diffused, variable, and less definite. Perhaps the most prominent is dizziness, or "vertigo," as stated by the patient. But close questioning shows that this is not a true vertigo, but a sense of unsteadiness, of uncertainty of equilibrium, of confusion, clearly referred to the head. Allied to this is nearly always a sense of indefinite fear. At times the dizziness is so great as to oblige the patient to keep his room and to give up all ordinary duties and relations. Going out upon the street or entering rooms filled with people intensifies the feeling to an insupportable degree, and the patient needs the moral or physical support of another person.

Various and peculiar sensations are felt in the head—such as a sense of fulness, "as if the head would burst"; a downward pressure on the head, diffused or localised, "as if a stone or a sharp stick" pressed on it; a sense of constriction, general or cincture-like; pain in various areas of the scalp; occasional feelings of numbness (a "dead" or "wooden" feeling), or of formication or wormlike crawling, also variously distributed; a quasi tinnitus or noise in the head (not in the ears) is not rare.

As these paræsthesiæ are increased by the sight of moving objects in a small or large space (on the street, where machinery is in motion, or where a number of people are moving), we often meet with conditions like those termed agorophobia and claustrophobia; and I am confident that many cases recorded under these titles have really been cases of eye-strain. However, I admit that there are such cases which depend upon more general pathological conditions. I should add that the movements necessary to make the examination of the eyes of these patients fatigue them very much, even the simplest test of the recti muscles by the index finger causing distress. Hence examinations should be made slowly and in several *séances*.

Apparent loss of mental power is perhaps more marked a feature of these cases than of those of category (A). The patient can do things fairly well all alone in the quietude of his room, but in his relations with the world he seems to lose all

self-control and power of attention and concentration. In consequence of the distress attending going out upon the street and meeting other persons, such a degree of emotional disturbance (loss of self-control) is developed that the patient is said to be hysterical. His symptoms absorb his attention so much that he often is called hypochondriacal as well.

Insomnia and neurasthenia are results of long-continued eye-strain in this category as in the first—perhaps more. It is in these later stages of the affection that the diagnosis becomes obscure, and can only be determined by prolonged observation and by trial of treatment. For it is not easy to say at once, in a case presenting symptoms of neurasthenia and hysteria (perhaps also "spinal irritation"), together with defective eyes, which of the conditions is primary and pathogenetic. The relation of cause and effect is doubtless in either direction in different cases, and it will be for future observation to give us the elements for judging this important question more quickly and positively.

In the few cases which I have seen in which all the ocular muscles were paretic, the (multiple) symptoms were more like those of category (B).

It is out of my province to speak of the ophthalmic examination necessary in all such cases; but I desire to call attention to the facts that the simple test of convergence, by approximating a small object to the patient's nose, increases the suffering of subjects of the first category, while those of the second category experience great distress when made to look outward or around without moving the head, or if a bright object is moved circularly, or a wheel rotated before them. Complete atropinization gives these last patients great relief.

A trial by bromide treatment often enables us to correctly judge cases in which hysterical and epileptic symptoms are conjoined. In cases of eye-strain, experience has taught me that cases of the first category (third-nerve paresis) are relieved by nux vomica or strychnine, and are aggravated by belladonna and other mydriatics; whereas, on the contrary, the last-named remedies give relief to cases of the second category (sixth-nerve paresis), and strychnine makes them worse. In some uncomplicated cases of paresis of the third nerves an apparent cure is obtained by a progressive course of strychnine.

Apart from the adaptation of proper glasses and prisms, in some cases the use of partial or total tenotomy or myotomy, which are all of the utmost importance, the scientific treatment consists in the internal use of nux vomica, strychnine, and nerve tonics generally in cases of category (A), and of cannabis indica, belladonna, atropine, conium, the bromides, antipyrine, &c., for cases of category (B). Of course, in cases of both categories, rest, much more complete than is usually prescribed (even

ocular rest by prolonged atropinization), and a general restorative treatment are necessary. Change of scene and travel are useful, but should never be prescribed until all the visual defects have been corrected and convalescence is evident. Work should not be resumed except with the aid of the most appropriate optical correction, and by degrees. It must be added that there are eyes which can not be "corrected" with our present appliances, and in such cases the prognosis is bad, although temporary improvement may be obtained by proper medicinal and hygienic treatment. I would, lastly, suggest that tobacco is particularly injurious to persons whose third nerves are weak. —*New York Medical Journal, December* 3, 1892, *p.* 617.

Obstetrics and Gynæcology.

77.—ON THE INDUCTION OF PREMATURE LABOUR BY CHAMPETIER DE RIBES'S BAG.

By G. Ernest Herman, M.B., F.R.C.P., Obstetric Physician to the London Hospital.

This is a bag with a tube attached to it. It is put into the uterus empty, folded up, and held in the grasp of a pair of forceps sold with it. The blades of the forceps are disarticulated, and withdrawn one at a time. Then water is pumped into the bag so as to distend it. When it is full the tap is turned, so that the water is retained; and then the bag is left in the lower segment of the uterus till it is expelled or pulled out.

The shape of the bag is that of an inverted cone, the apex of the cone lying in the internal os. It is made of waterproof silk, not elastic, so that it will receive a definite amount of water and no more. Its size is such that the os uteri must be fully dilated to allow it to pass out. It contains about seventeen ounces of fluid, and when full its base measures about three-and-a-half inches across.

The use of the bag is to dilate the cervix and lower segment of the uterus when it is desired to empty the uterus prematurely; or when in labour at term the natural agencies which should perform the first stage of labour fail. In English practice at the present time the favourite way of doing this is by Barnes's fiddle-shaped india-rubber bags. I think this bag devised by Champetier de Ribes is a great improvement on Barnes's bags, and therefore have brought forward this communication.

The advantages of this bag over Barnes's are the following: — (1) With Barnes's bags successive sizes have to be put in, one after the other; and the introduction of each needs a visit from the doctor, and manipulations troublesome to him and disagreeable to the patient. One operation only is required with Champetier de Ribes's bag; when this is in its place it dilates the cervix to the full extent without any need for further interference, and the doctor may leave the patient, trusting the nurse to send when pains become strong. (2) Barnes's bags are made of india-rubber, which stretches when fluid is pumped in. Hence the operator has no clear indication when the bag is full; and hence, also, if the cervix is rigid, the part in the cervix

remains unexpanded, while the part above, and especially the part below, bulge out instead. Champetier de Ribes's bags is made of inelastic material; when it is full no more fluid can be pumped in, and it does not alter its shape. (3) Barnes's bags

Fig. 1.—Bag folded and held in forceps for introduction.

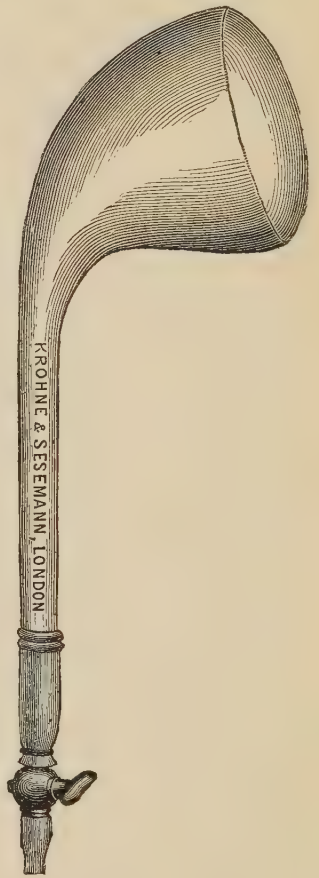


Fig. 2.—Bag distended.

Diagrams representing Champetier de Ribes's bag (½ nat. size).

are put in with a rod or sound in a little pocket at the side of the bag. This little pocket is very apt to give way. Modifications have been made in the bags by others to remedy this imperfection; but I have seen no way so satisfactory as the convenient forceps by which Champetier de Ribes's bag is put in. (4) It is not possible with Barnes's bags to get complete dilatation of the os. Champetier de Ribes dilates it fully. (5) In the introduction of Barnes's bags the membranes are sometimes ruptured, and the presence of the bag in the lower segment of the uterus sometimes displaces the presenting head, making a natural into a transverse presentation. With Barnes's bags these are serious drawbacks, for if these accidents have happened, there is much risk to the life of the child in turning and extraction. They may happen also with Champetier de Ribes's bag, but when it is used they are not important, for the bag completely fills the cervix uteri and retains the greater part of the liquor amnii, and when the work of the bag is complete, the child can be at once turned and extracted without difficulty. (6) Barnes's bag partly dilates the cervix, but if pains are not provoked (and I have known this happen) when the bag is removed, the cervix may recontract. With Barnes's bag there is no way of accelerating labour if pains are weak. If Ribes's bag be used, and the first stage is protracted by weakness and infrequency of pains to an undesirable extent, we can accelerate dilatation by pulling on the bag.

When folded up the bag is rather thicker than a finger. Hence it cannot be put into a cervical canal that has not reached this degree of dilatation. Dilatation must be started in some other way, by a bougie or a tent, or by a dilator invented by Mr. J. W. Taylor, of Birmingham, and similar in principle to Champetier de Ribes's, but smaller. Pinard has recorded forty cases in which Champetier de Ribes's bag was thus used to induce labour. In twenty-three dilatation was complete in from six to twelve hours; in seven it occupied from twelve to twenty-four hours; and in ten, between twenty-four and forty-eight hours. I have used it in four cases, of which I will briefly give the main facts.

Case 1, aged 31; fourth pregnancy. First labour craniotomy; second and third induced. Diagonal conjugate four inches. Conception said to have taken place on June 13th. Admitted into the General Lying-In Hospital on January 12th, 1892; 10 p.m., bougie put in. January 13th, 3 p.m., Champetier de Ribes's bag inserted; 9.25 p.m., spontaneously expelled; presenting part high up. 10.45 p.m., child delivered by turning; weight, 5lb. 7oz. Mother and child did well.

Case 2, aged 24; second pregnancy. Last menstruation ceased June 25th. Admitted into the General Lying-In Hospital,

March 6th, 1892, at 9.30 a.m., on account of hemorrhage. She thought she had lost more than half a pint of blood before admission, and after admission blood continued to drain away. 9 p.m., os uteri easily admitting finger; placenta not felt; fœtal heart audible; Champetier de Ribes's bag put in. March 7, 1.30 p.m., bag found to be in the vagina, therefore removed; cervix fully dilated, occupied by bag of membranes, head presenting; membranes therefore ruptured; child born naturally at 2 p.m.: weight, 6lb. 5oz. Mother and child did well.

Case 3, aged 37; fourth pregnancy; previous labours difficult; conjugate $3\frac{1}{4}$ inches; simply flat pelvis; labour induced at seven months by bougie; twenty-four hours after introduction of bougie cervix admitting two fingers; Champetier de Ribes's bag put in; bag removed twelve hours afterwards; cervix fully dilated; child turned and delivered living. Mother did well.

Case 4, aged 23; first pregnancy; ricketty flat pelvis; conjugate $2\frac{3}{4}$ inches; a double promontory; patient eight months pregnant. Admitted into London Hospital, July 4th, 1892, 10.30 a.m., Champetier de Ribes's bag put in, and left until July 6th, 6 a.m., when patient had a rigour, temperature rising to 103·60°. The bag was therefore emptied and withdrawn; cervix found nearly fully dilated; child turned, but owing to the contraction of the pelvic brim could not be delivered without perforation. Mother recovered without any bad symptoms, and left the hospital on July 22nd.

In these cases the duration of the part of the first stage of labour effected by the bag varied from $6\frac{1}{2}$ to forty-four hours. The long duration in case 4 was owing to the absence of pains. In no case did there seem to be any ill effect from the bag, either from its introduction and rapid distension or from its continued presence in the uterus.

As the bag measures $3\frac{1}{2}$ inches across at its widest part, and, when quite full, can only be compressed to a slight degree, it is possible that, if used in a much contracted pelvis, the bony contraction might prevent the bag from being expelled after it had done its work of dilating the cervix. Therefore I have tested the compressibility of the bag. When filled as an ordinary Higginson's syringe will do it, the diameter of the bag can be reduced by strong pressure to three inches. After two ounces of fluid had been allowed to flow off, the bag could be easily compressed to a diameter of $2\frac{1}{2}$ inches. Letting off four ounces of fluid made the bag shapeless. I conclude, therefore, that in a pelvis contracted to below $3\frac{1}{4}$ inches, it will be well, after filling the bag, to let two ounces of water run out of it.

I believe that we have in this bag a valuable addition to our armoury. It dilates the cervix in the natural way, namely, by fluid pressure. I think its use will be found beneficial, not

merely as a means of inducing labour, but as a means of dilating the cervix in cases in which the natural agent—the bag of membranes driven into the os by uterine action—is absent. Detailed specification of the circumstances in which Champetier de Ribes's bag ought to be used would require a long paper; but I may mention, as cases in which it might be of great assistance, cases of early rupture of membranes with transverse positions or with contracted pelvis. In accidental hemorrhage, when the bulk of the uterine contents has been lessened by letting off the liquor amnii, the dilating effect of the lost fluid may be replaced by this bag. In placenta prævia I should expect it to dilate the cervix, and at the same time press upon the bleeding vessels better than any other artificial means.—*British Medical Journal, January* 7, 1893, *p.* 5.

78.—ON INDUCTION OF LABOUR BY THE INTRA-UTERINE INJECTION OF GLYCERINE.

By A. R. Simpson, M.D., F.R.C.P.E., Professor of Midwifery in the University of Edinburgh.

[Professor Simpson records a case of puerperal eclampsia in which premature labour was induced by the injection of three ounces of glycerine into the lower uterine segment, through the undilated os and canal of the cervix. The patient succumbed to the eclampsia and post mortem there were found extensive meningeal apoplexy and early acute renal disease. Professor Simpson makes the following remarks upon the case and the method employed.]

The point that is of most practical interest in the history I have recorded is the method adopted to promote uterine activity, and to those who have not read Pelzer's paper, I suppose it will have the interest of novelty. In this paper, after indicating the dangers and uncertainties attendant on the methods so commonly employed for inducing labour of injecting warm water, or of introducing an elastic bougie between the membranes and the walls of the uterus, he gives the history of four cases in which labour was induced by injecting glycerine into the lower uterine segment. In the first case the membranes were accidentally ruptured by the point of the syringe; but in the other three cases the injection was successfully carried out. Two of these were cases of induction of premature labour for contracted pelvis; the other was a case of placenta prævia.

To the inquiry as to how the glycerine injection sets up uterine action, Pelzer offers three suggestions :—(1) It produces a mechanical separation of the membranes from the interior of the uterus. This is an action which it has, of course, in common with other methods employed for the purpose, such as the separation of the membranes with a finger, sound, or bougie, or by the injection of warm water, pure or medicated, through the cervical canal. (2) He suggests that it may have the effect of a direct irritant on the interior of the uterus, setting up in this way uterine contractions. This is the more to be believed when we remember the effect of injections of glycerine into the rectum, which favour the evacuation of that canal, not merely by the promotion of secretion, but by irritation set up in the muscular wall, the contractions in which sometimes continue in a tenesmic fashion after defæcation has been completed. (3) The most important influence of the glycerine, however, lies in its well-marked hygrometric property. Its power of absorbing water is so pronounced that it attracts to itself the liquor amnii through the medium of the membranes, and there results from this withdrawal of the liquor a certain degree of collapse of the uterus, such as is seen in cases where the membranes are ruptured and the fore-waters escape. Pelzer cites in proof of this power which glycerine possesses of abstracting liquor amnii through the membranes the observation that may be made of placing an aborted ovum in glycerine, when the walls of the sac will be seen gradually to collapse as the liquor passes through them, until it becomes almost completely absorbed by the glycerine. He has made the experiment, further, of dipping into coloured water a tube containing glycerine, and having the mouth closed with a piece of the membranes, when he found that the glycerine becomes coloured and quickly increased in volume, while the quantity of water diminishes. On the other hand, when he dipped a similarly closed tube containing clear water into coloured glycerine, the water remained clear, but quickly lessened in quantity,—all showing that the liquid was powerfully absorbed by the glycerine.

Pelzer tells us, moreover, that he was the rather disposed to make use of this means of inducing premature labour because of the consideration that glycerine possesses distinct antiseptic qualities, and that it was likely to exert a beneficial action as an emollient in promoting the relaxation of the soft canals. A substance having such valuable properties as an antiseptic, hygroscopic, emollient and stimulant, he justly remarks, is likely to prove serviceable, not only for the induction of premature labour, but in all cases where, at the close of pregnancy, it becomes necessary to hasten the labour. "Among these," he says, are to be reckoned the accidents which threaten the life

of the mother or children, such, *e.g.*, as eclampsia." The results of its employment in the case before us fully justify the anticipation thus expressed.

Following up his further suggestion, that it might be helpful for the promotion of labour in cases of protracted first stage, we made trial of glycerine injections in four other Maternity cases, with encouraging results. Thus, in an viii-para with a small pelvis, where the os only admitted the finger-tip after the first stage had lasted fifteen hours, an ounce of glycerine was injected, and in four and a half hours afterwards, without any other interference, the os was fully dilated. In a i-para, where, after the lapse of fifteen and a half hours, the os only admitted the finger-tip, half an ounce of glycerine was injected, with the like result of full dilatation of the os in four and a half hours. In the other two cases the observations were not so simple, as in one of them morphia and chloral had also been administered; and in the other, a case of placenta prævia, a Barnes's bag was used to promote the dilatation. In both of them, however, the influence of the glycerine injection in promoting uterine action was quite observable.

I may add that on a recent occasion my friend Dr. James Young sent for me to see with him an elderly primipara, in whom the first stage had been going on for a day and a night without producing dilatation of the os beyond the size of a two-shilling piece. I could not meet him at once, but asked him in the meantime to make use of the glycerine injection. When I arrived, two hours later, the canals had become sufficiently dilated to allow of the extraction of the child with forceps. Dr. Young remarked that the glycerine had worked like magic in stimulating the uterine action and releasing the rigid tissues, and wondered that he had never before heard of its virtues in this respect.

It should be observed that there were found to be indications of sugar in the urine that was first drawn off from our patient after her admission, which was, no doubt, rightly enough attributed to the injection, and might indicate the partial absorption of the glycerine. For it is believed to be eliminated in the urine in a form which gives some of the reactions of sugar; and it may be well to bear in mind that, if absorbed largely, it is said to cause hæmoglobinuria.

As to the manner of application of the glycerine, two different methods were adopted. At one stage cotton wadding soaked in glycerine was introduced into the cervical canal. This is the method suggested by Kehrer in his account of the different procedures that may be adopted for induction of premature labour. He is the only other obstetrician besides Pelzer who seems to have made use of glycerine in this direction, and all he

says is,—"Tamponing of the cervix with glycerine-wadding has proved itself a means of exciting strong pains in several cases recently observed in our klinik, and is therefore worthy of further trial. Perhaps the glycerine acts on the uterine musculature in the same way as the Oidtman glycerine clysters on the bowel." Its application in this manner, however, did not seem to produce such satisfactory results as the direct injection of the fluid through the os internum into the lower segment of the uterus in the manner advocated by Pelzer. When care is taken to fill the syringe to the very nozzle with glycerine, so that all air is expelled, the procedure seems to be unattended with any danger. One, two, or three ounces are slowly injected, and though some of the fluid may escape at once past the tube, a sufficent quantity passes in between the membranes and the uterine wall, and lodges there, to produce the desired effect. This seems to come about very speedily, as the uterus soon begins to contract if it has been previously quiescent, or to contract more vigorously if the pains were feeble. In cases where the uterine action is not so energetic as is desirable, the injection may be repeated; and I see no reason why it should not be repeated again and again, although, as far as experience goes, the second injection proves sufficient.

The experience as yet is admittedly very limited. But it is at least sufficiently encouraging to warrant me in bringing Pelzer's procedure under your notice, and commending it to your careful consideration and practical application.—*Edinburgh Journal, April*, 1893, *p.* 895.

79.—ON THE AXIS-TRACTION FORCEPS.

By C. J. Cullingworth, M.D., Obstetric Physician to St. Thomas's Hospital.

I believe the axis-traction forceps to constitute the most important improvement that has been made in the construction of the instrument since the introduction of the pelvic curve. No one who has used it sufficiently often to overcome the slight difficulty at first experienced in its manipulation will ever willingly return to the older form. It can not only accomplish all that the older instrument can accomplish, and do it more easily, but it can accomplish more—for it will not infrequently succeed where the latter has failed. I am myself firmly convinced that the general adoption of the principal, at least, of axis-traction, the truth of which is capable of mathematical proof, is merely a question of time. It was in the form of Professor Simpson's modification of Tarnier's forceps that I first

became practically acquainted with the instrument. It will therefore be readily understood that, as a mere matter of sentiment, I have been loth to suggest any alteration in the Edinburgh model. When, however, in the year 1889, Messrs. Down Brothers informed me that they were about to make some axis-traction forceps in order to meet the demand consequent upon my recommendation of them, and asked me which pattern I should recommend them to adopt, it seemed a suitable opportunity for proposing some slight modifications in Professor Simpson's instrument that experience had convinced me would still further increase its value. It differs from Professor Simpson's chiefly in being generally firmer and more unyielding, in being furnished with stronger screws and a stronger stud on the traction plate, and in its being made entirely of metal. The object of these alterations is to provide an instrument that will not bend; that, being made specially strong in its weakest parts, will not be likely to fail at the supreme moment by the giving way of those parts; and that, by having no woodwork about it, can be rendered thoroughly aseptic by boiling. The total length of the instrument is $14\frac{1}{2}$ in. The handles are $5\frac{1}{2}$ in. long, the shanks $2\frac{1}{2}$ in., and the blades, measured along the chord of the arc, $6\frac{1}{2}$ in. The shanks are very strong and are $\frac{3}{4}$ in. apart. The greatest width between the blades is from 3 in. to $3\frac{1}{8}$ in., and the distance between their extremities (when the instrument is locked and the application handles in contact) is $\frac{3}{4}$ in. Each blade has a maximum breadth of $2\frac{3}{16}$ in., and a fenestra $4\frac{1}{4}$ in. long by $1\frac{1}{2}$ in. wide. The traction rods are screwed on to the solid part of the blade, immediately below the fenestræ, so as to allow of antero-posterior movement only. A key is sent with each instrument for unfastening these screws for cleaning purposes. The fixation screw is the same as in Professor Simpson's instrument, but is somewhat stronger. The design of the locking plate and the traction handle is also the same, but again the screws and knobs are of stronger construction.

I have purposely delayed publishing any description of it until its practical value has been repeatedly tested. It has now been used a good many times both at the General Lying-in Hospital and in the maternity department at St. Thomas's Hospital, and has been found to be a highly efficient instrument. The delay has enabled me to suggest an important alteration of the original model. The blades were unnecessarily wide apart between the fenestræ and the shanks, causing premature distension of the perineum as the head descended. That defect has been removed. The instrument is, I am aware, heavier than is desirable, but this fault appears to me to be more than counterbalanced by the ease with which, being constructed entirely of metal, it can be efficiently disinfected. It has been a matter of considerable

interest and gratification to me to observe that Dr. Milne Murray of Edinburgh, approaching the subject from a more theoretical standpoint, has quite independently suggested a modification of Professor Simpson's instrument that in many respects resembles the one here described. I am sure Dr. Murray will believe me when I say that I had not seen his paper at the time my own suggestions were being worked out.

It may be useful, in conclusion, to give a few plain directions for applying the axis-traction forceps. 1. Introduce first the left blade, to which the traction bar is attached. 2. Before introducing the right blade see that its traction rod is swung forwards, otherwise there will be difficulty in locking the instrument. 3. When the blades have been locked, swing back the traction rod of the right blade and hook it on to the traction plate. 4. Holding the instrument by the application handles, estimate the degree of compression that is desirable and tighten the fixation screw so as to keep up the compression at that point. 5. After this has been done leave the application handle untouched. 6. Make traction with the traction handle, keeping the traction rods parallel with the shanks. 7. Complete the delivery of the head before removing forceps. This gives greater command over the head, enabling one to prevent its too rapid expulsion and to make traction when there is least strain. 8. As soon as the head is born, loosen the screw, set free the right traction rod and remove the blades, first the right and then the left.

I have to acknowledge the great help I have derived in the preparation of this short address from the admirable monographs on the subject contributed to the *Edinburgh Medical and Surgical Journal* by Professor A. R. Simpson and by Dr. Milne Murray, to which, as well as to Tarnier's original account of his instrument, I must refer those who may desire fuller information as to its theory and scope.—*The Lancet, December* 10, 1892, *p.* 1326.

80.—ON THE TREATMENT OF POST-PARTUM HEMORRHAGE.

By G. Ernest Herman, M.B., F.R.C.P., Obstetric Physician to the London Hospital.

Nature and art alike stop bleeding by pressure. A torn artery contracts, and its muscle presses together its walls; the surgeon compresses cut vessels with forceps, ligature, or pad. In the retracted uterus the muscular fibres compress and close the veins. The best treatment of post-partum hemorrhage is that which secures closure of the veins by compression. No means but

pressure is relied upon by surgeons who deal with other parts of the body; and in the treatment of post-partum hemorrhage nothing can be relied upon that does not ensure compression of the bleeding vessels.

The post-partum hemorrhage I deal with is the common kind, namely, that due to uterine atony. The modes of stopping bleeding after labour may be divided into three groups, according to their principal aim, which is: (1) to make the uterus contract (2) to compress the bleeding veins (3) to clot the blood.

In all cases we first try to make the womb contract—in most with success. Cases are fortunately rare in which the womb will not contract and we have to do something else.

There are three ways of making the uterus contract, namely: direct stimulation, indirect stimulation, and drug stimulation.

(*a*) *Kneading with Hand Outside.*—Kneading the uterus through the abdominal wall comes first, because it is quickest. The attendant's hand is always ready, while everything else takes time to prepare. It is almost always successful for the time, and in the slighter cases its repetition at intervals is enough.

(*b*) *Hand Inside.*—But in some cases the response of the uterus to stimulation from outside is not lasting. The second step is to pass the hand into the relaxed uterus. This not only stimulates the uterus, but by it we gain help in diagnosis and prevention. The business of the intrauterine hand is to find out if there be anything in the womb which is causing the bleeding, such as retained placenta or membrane, or clots, or a tumour, and, if there be, to remove it. If there is a cause which we have removed, continued stimulation from outside will generally secure continuance of uterine contraction.

(*c*) *Injection of Hot Water.*—But the contraction provoked by the contact of the hand with the inside of the womb may not last. The repeated introduction of the hand is undesirable. The next thing to be done is the injection into the uterus of hot water. This directly provokes contraction, and does good in another way, because it washes out loose clots, bits of membrane, &c., small enough to elude the hand, and yet better out of the uterus. It seems as if the hotter the water, the greater the effect. Water in which the accoucheur can bear to immerse his hand will not injure the tissues, although it may be a little hotter than the patient likes. There is therefore no need to lose time in taking the temperature of the water; the accoucheur's hand (not fingers) is sensitive enough.

(*d*) *Cold Water or Ice.*—Cold water may be used instead of hot water, or iced water, or a lump of ice may be put in the uterus or in the vagina. But ice is not generally available when wanted, while hot water is always ready in the lying-in room, and, to an exhausted patient, warmth is more grateful than cold.

Two modes of reflex stimulation are in common use, which act through the nerves (*a*) of the skin, (*b*) of the breast. (*a*) Ice or cold wet napkins to the vulva, slapping the abdomen with a cold wet cloth, pouring cold water on the abdomen, are familiar and old. They undoubtedly cause reflex contractions of the uterus, but drenching with cold water makes the patient uncomfortable, and depresses her strength, as Madame La Chapelle pointed out. The milder measure of a cold wet cloth is less objectionable, but it is not superior in effect to kneading the uterus with the hand. But if the accoucheur is tired of kneading, or has to do something else with his hands, a cold wet cloth applied by the nurse may be a useful temporary substitute. (*b*) Putting the child to the breast is so harmless that this should always be done. But the time generally taken in this prevents it from being of immediate use, although it is valuable as a means of keeping up the contractions procured by kneading the uterus.

There is one drug, and only one, which produces uterine contraction and retraction, and that is ergot. Other drugs have been advised, and good results reported from them, but there are none that approach ergot in power. But in the worst cases we cannot wait for the absorption of ergot, for even when the drug or one of its derivatives is injected under the skin, there is still time for fatal hemorrhage before its action on the uterine muscle begins; and the worst cases of hemorrhage are those in which the contractile power of the uterus is exhausted, and then even ergot fails. Ergot is invaluable, but its chief uses are (*a*) as a prophylactic, given immediately after the birth of the child, and (*b*) after bleeding has stopped, to make tonic the contraction produced by other means.

But the worst cases of post-partum hemorrhage are those in which the contractile power of the uterus is exhausted, and no kind of stimulant will procure tonic contraction. We must here rely on either pressure, blood-clotting, or a combination of both.

The injection of perchloride of iron solution stimulates the uterus to contract and clots the blood. It is the clotting that is valuable, for the stimulant effect can be got by other means. The cases in which the clotting is required are those in which the uterus has lost its contractile power; we, therefore, leave off trying to make it contract, and act directly on the blood. The objections to this treatment are, first, that it is dangerous. Secondly, the injection of perchloride of iron is not always successful. In the *St. Thomas's Hospital Reports*, between 1872 and 1880, I find five failures recorded. Galabin states that out of twelve cases in the Guy's Charity in which the ferric solution was used five died. It may be urged that cases in which death took place are not always failures to arrest hemorrhage, for the

patient may have died from the effect of the loss of blood which had occurred before the treatment was used. But in a paper by Pollard I find three cases in which hemorrhage recurred after the iron had been injected. Two others are recorded in the Obstetrical Society's *Transactions*, vol. xx. My conclusion is that the injection of perchloride of iron, although its effect is to check hemorrhage, yet is neither safe nor certain.

Lately a new treatment has come from Germany, namely, plugging the uterus with iodoform gauze. It is claimed that, by packing the uterus with gauze the flow of blood from the vessels is mechanically hindered, and that the presence of the gauze provokes energetic uterine contraction. It will be evident also that the threads of the gauze furnish a surface well adapted to provoke clotting of the blood. Its advocates say that the bleeding is stopped by the powerful contraction of the uterus on the gauze plug, which is a continuously-acting stimulant. They say, further, that if the doctor has gauze with him he is saved the trouble of exact diagnosis of the cause of bleeding, for gauze plugging is the best way of stopping hemorrhage from lacerations of the canal (except in the case of tears of the vulva, which can be easily seen), and therefore in hemorrhage of uncertain origin the best plan is to plug both the vagina and uterus. Dührssen (to whom we are indebted for this mode of treatment) recommends prophylactic plugging instead of waiting for hemorrhage to become serious. It must be admitted that, if the uterus is to be plugged, there is no better way than by iodoform gauze.

This treatment is neither certain nor safe. It is, like the injection of a styptic, unphysiological, for the uterus cannot be completely contracted while the gauze is inside it. In one reported case the uterus expelled the gauze. Surely this can hardly be called uterine atony.

If the uterus can be got to contract, and remains contracted, bleeding will stop. When the uterus responds either to iron injection, or to gauze in its interior, by vigorous contraction, it will respond to other means. The worst cases are those in which the contractile power of the uterus is exhausted, and nothing will procure tonic contraction. Here the best and only remedy is prolonged and continuous compression. The uterus is too large to be compressed by one hand unassisted. Various modes of compression have been advised.

The right way, in my opinion, is to compress the uterus between one hand in the vagina and the other on the abdomen. In the left lateral position the left hand will naturally be used internally, the right outside. The internal hand may be laid flat (as suggested by Hamilton, of Falkirk), the body of the uterus being opposed to the palm, the cervix lying between the parted fingers.

That which seems to me the best way of firmly compressing the uterine body is to bend the fingers of the left hand into the palm, and grasp the uterine body between the right hand on the abdominal wall, and the firm resisting surface formed by the closed fingers and volar prominences of the left hand. By this use of the hands the whole of the uterine body can be firmly compressed, and clots can be squeezed out through the cervical canal. It brings with it no risk of injury to the uterus, offers no increased facilities for the entry of germs, and secures the maintenance of one essential condition for permanent uterine retraction and contraction, namely, an empty uterus. The pressure need not be more forcible than is needed to press the uterine walls together. It is a little irksome to keep it up, but it can be maintained quite long enough for the blood in the vessels to clot. It is not more irksome than the repeated manipulations which other less certain modes of treatment involve, and the anxious watching of their effect.

When the uterus will not contract, the only thing that in my opinion can be relied on is the maintenance of firm compression. In almost all the cases I have read in which it is said that more was required, either pressure had not been tried, or only tried after other ineffective measures had been practised. By "pressure" I mean not simply kneading the uterus to make it contract, but firmly and continuously compressing the uterus, just as a surgeon would compress a vein wounded during an operation. This ought not to be postponed until the failure of attempts to get contraction has been repeatedly demonstrated; but as soon as ever it is clear that stimulation fails to produce contraction, or that the contraction produced by stimulation is not lasting, the uterus should be steadily compressed, and pressure maintained until it can be relaxed without bleeding occurring. Early and steadily-maintained compression of the uterus is the safest and best treatment of post-partum hemorrhage.—*British Medical Journal*, *December* 24, 1892, *p.* 1377.

[See also Synopsis of this volume of the *Retrospect.*]

81.—ON SYMPHYSIOTOMY. WITH THE REPORT OF AN OPERATION.

By Barton Cook Hirst, M.D., Professor of Obstetrics in the University of Pennsylvania.

[Dr. Hirst refers to cases recorded by Leopold (2), Porak, Freund, and Jewett, all in the year 1892.]

Symphysiotomy has as remarkable a history as any procedure in surgery. Suggested for the first time in the *Surgery* published

by Pineau in 1598, and first performed upon a living woman in 1777, the idea may be said to be three hundred years old, while its practical application dates back more than a century. From the year of the first operation until 1858 symphysiotomy was performed eighty-five times in different parts of the Continent of Europe and once in England, with a mortality of thirty-three per cent. The frequency of the operation diminished after the first few years, until in 1858 it had practically died out. It was revived, however, in Italy in 1866, and in the succeeding twenty years seventy operations were performed with a mortality of twenty-four per cent. Italy continued to be the exclusive field of the operation until a year ago, when it was again tried in Paris by Pinard, whose interest in it was aroused by a visit of Spinelli from Italy. Ten operations have since been performed in Paris, two in Dresden, and one in Strasburg. From January 1, 1886, there have been fifty-two operations, with only a single death, due to septic infection before the operation was undertaken. Twenty-three symphysiotomies have been done already this year, and the last thirty-four women have all recovered.

We owe the introduction of symphysiotomy in this country to Dr. Robert P. Harris, who, as is well known, has long been interested in the subject, and at the recent meeting of the American Gynecological Society in Brooklyn read a paper tracing the development of the operation, showing by most laboriously collected statistics the present brilliant results achieved by it, and demonstrating, by typical cases, its utility in labours otherwise insuperably obstructed by a contracted pelvis.

Ten days after Dr. Harris's paper was read, on September 30th, the first operation in this country was performed by Dr. Charles Jewett, in Brooklyn. Three days later it was again performed at the Maternity Pavilion of the University Hospital in this city.

The position of symphysiotomy is now established beyond a doubt. Its modern revival I believe to be the most important advance in obstetric surgery since the general adoption of abdominal section for the treatment of early extra-uterine pregnancy. It is applicable in contracted pelves with a conjugate over 67 mm., and, therefore, should be the method employed in almost all cases of the kind in this country, for a greater contraction of the pelvis is rarely seen among us. It should, moreover, almost entirely displace the Cæsarean section for a relative indication. It is a much simpler, an easier, and a safer operation. This is also the opinion of Leopold, who cannot be accused of prejudice against Cæsarean section, with his brilliant record in that field.

There is and will be for some time, perhaps, an objection to the operation from those who have no experience with it, on the

ground that sufficient space cannot be thus gained. In answer to this objection is the fact that the pubic bones may gape 7 cm. after their separation, and the statement of Morisani, that the conjugate is thereby increased from 1·3 to 1·5 cm.

A German woman, aged nineteen, pregnant for the first time, was admitted to the University Maternity, September 24th. The examination showed the child to be presenting by the head, the back to the right. The pelvic measurements were :—Sp. il., 25 cm. ; cr. il., 27 cm. ; tr., 30½ cm. ; conj. ext., 18 cm.

The internal examination showed the conjugata diagonalis to be 9½ cm. ; conj. vera, 7¾ cm. The girl fell in labour Saturday morning, October 1st. The pains, recurring all day, on Sunday became very vigorous. On Monday morning, when my attention was first called to the case, the contraction-ring was high, the uterus stood almost straight out from the body, and the child's head was movable above the superior strait. The membranes were unruptured. By no justifiable degree of force could the head be made to enter the pelvis. The fetal heart-sounds were good. It was evidently, therefore, a choice of Cæsarean section, craniotomy, or symphysiotomy. The last was done, with the assistance of Dr. R. C. Norris and the valuable advice of Dr. R. P. Harris, who kindly consented to be present. The child was delivered with forceps in one hour and four minutes from the time the operation was begun. I purposely took my time, for the os was only the size of a dollar, and was very rigid, so that a more rapid extraction would have seriously injured the cervix. Head measurements:—B. T., 7½; B. P., 9; F. O., 12; M. O., 13½; circ., 34. Mother and child are well.

The technique of symphysiotomy is simple and easy. After thoroughly cleansing the field of operation and disinfecting the vagina as well, a short vertical incision is made on the abdominal wall, reaching to about three-quarters of an inch above the symphysis. The attachments of the recti muscles are severed just sufficiently to admit one finger. The forefinger of the left hand is passed under the symphysis, and upon this as a guide the curved knife of Galbiati is inserted until its beak projects under and in front of the symphysis. The joint is then cut upward and outward. To avoid injury to the urethra, a metal catheter is inserted and pressed by an assistant downward and a little to the right, while the knife is placed a little to the left; but with Galbiati's knife I should think that there is little likelihood of cutting the urethra or the plexus of veins in its neighbourhood. I at first thought that an ordinary probe-pointed, curved bistoury would serve my purpose well enough, but I quickly laid it aside, and was glad to avail myself of Galbiati's knife, which I happened to possess—at the time one of the three, I believe, in the country.

As soon as the joint has been severed, the wound should be covered with iodoform-gauze, and then the child extracted with forceps, or allowed to be delivered naturally, as seems best in the individual case. I should, I think, almost always prefer the forceps. It is well to have the trochanters supported by assistants during the passage of the child through the pelvis, so that the sacro-iliac joints shall not be injured.

As soon as the delivery is completed the wound is sewed up, the lowest stitch, if desired, passing through the top of the symphysis. How the whole symphysis can be stitched up, as Leopold claims to have done, I do not understand. After closing the wound and dressing it, rubber adhesive strips are placed around the hips and the lower abdomen, and a tight binder applied. The symphysis unites surprisingly soon, and three weeks after the operation the patient can walk as firmly and as well as ever.

There is only one disturbing thought in connection with the introduction of an operation destined to do so much good. The charge of superficiality lies with some justice against us. We are too ready to reach out toward the top without a sufficient basis of solid preparation, and I fear that symphysiotomy may be undertaken by many who cannot correctly measure a pelvis and who have not the experience to decide whether a head can pass through the pelvis in which it is about to enter or in which it is engaged. There is consolation, however, in the reflection that if symphysiotomy should be done needlessly the results are not likely to be so disastrous as in the case of Cæsarean section, which, to my knowledge, was done several times unnecessarily during the excitement produced among medical men by the improved results of the Sänger operation.—*Medical News*, *October* 15, 1892, *p.* 432.

82.—ON SYMPHYSIOTOMY.

By A. Pinard, Professor at the Obstetrical Clinique of the Faculty of Medicine, Paris.

[The following excerpt is taken from a clinical lecture upon thirteen cases in which symphysiotomy was performed with complete success, so far as the mothers were concerned. In each case the pelvis was as firm as before the operation, and there was no trouble in micturating or in standing. In reviewing the series of cases Professor Pinard said :]

Let us now consider the following three questions: 1. What has our experience taught us? 2. What place ought symphy-

siotomy to occupy amongst obstetrical operations? 3. What are and what will be its relation to other operations?

1. *What has our experience taught us?*—We have learnt, from the thirteen cases which have been observed in this clinique, that the results obtained on the cadaver can be obtained in the same way on the living patient and that the geometrical formulæ of Professor Farabœuf are perfectly exact. We have learnt that the method of operation which we recommended and which we have employed, and which I ask permission to repeat briefly, renders the operation easy and absolutely protects the organs which ought not to be injured. All antiseptic precautions having been taken and the surgical and obstetrical instruments prepared, the woman should be placed on her back near the side of a firm bed of moderate height, so that one may command directly from above the median line, which has to be incised. In the case of the cadaver, one can stand on the right side to perform symphysiotomy. On the living it is better, on account of the development of the abdomen, to stand between the limbs. I have always done so on the living. An incision should be made in the median line, and exactly in this line, of the integuments and the prepubic adipose tissue for an extent of about 8 cm., the incision stopping above the clitoris. The recti in the upper part of the incision and immediately above the symphysis should be separated in order to allow the index-finger to penetrate into the prevesical cavity and protect the bladder. This finger plays a most important *rôle* for me; it protects, it gives information. It protects the bladder by its dorsal aspect; it often feels the pad of the symphysis (but not always, for this is often so very slightly prominent that it cannot be appreciated) and thus renders the section easy. As soon as the bistoury has penetrated into the symphysis it is this finger on which its blunt point strikes, and that keeps a record of its progress down to the last fibres of the subpubic ligament. The finger being thus in the pre-vesical cavity, the symphysis must be incised from above downwards, and from before backwards, by many touches of the bistoury, allowing the latter to penetrate where it finds least resistance. As soon as we are within the symphysis the bistoury must be allowed to guide, so to speak, and not be compelled to follow a straight line. Immediately after cutting the symphysis a complete section of the subpubic ligament should be made. For this section the precaution must be taken of introducing a sound into the urethra so as to incline the latter down to the side; then the ligament must be attacked with caution by small cuts, as if cutting it fibre by fibre. The finger shows the progress accomplished; and as a general rule, when the finger learns that only a few fibres remain, like a small resisting cord, this cord breaks and the spontaneous separation, which had been only

a few millimetres, suddenly increases and reaches two or three centimetres. A careful abduction of the thighs then shows that a further separation can be easily obtained. I cannot too often repeat that before all obstetrical attempts one must be sure that the section is complete so that the fœtus may have nothing to overcome by violence and at the peril of its life—that is to say, the pubes must be separated for *at least four centimetres*. If the abduction of the thighs is not sufficient to produce this separation, the registering separator, which has been made for us by M. Collin, introduced between the two surfaces of the section, will easily produce this desirable and indispensable result. This being done, the wound must be closed with a sponge and antiseptic gauze or wool. You see that I reject, completely and absolutely, subcutaneous section, the incision of the symphysis from below upwards and the incision from behind forwards. You observe especially that I am in complete opposition to those who advocate incomplete section or who leave the subpubic ligament. I am convinced that if I had obtained a preliminary separation of 4 cm. in my first operation before extracting the fœtus instead of leaving to the after-coming head the duty of separator I should have obtained a better result. So much for the method of operation in symphysiotomy itself. I now examine an obstetrical question and I say that both before and after symphysiotomy it is preferable to have a vertex presentation. An application of forceps is better than an extraction by the feet; at least, so I think. But, here, again, I cannot too often repeat that the application of forceps ought to be exact. The hand should be thoroughly introduced so as to place the first blade in the middle of the pre-auricular region; if the head is not flexed it should be first flexed with the hand. Nothing is easier. That being done, the other blade should be introduced without displacing either the first blade or the head. Remember that when the two blades are introduced and placed, if they are not on the same plane and if you are obliged to make an effort to articulate them, the blades are badly placed, the head is wrongly seized, and soon in pulling you will, without doubt, make the head endure enormous local pressure and produce fractures. Well, then, the necessity for an equal application of forceps on a flexed head after as well as before symphysiotomy is absolute. Then after section of the symphysis I prefer to intervene and not to trust to uterine contractions alone to expel the fœtus; also, after the extraction of the fœtus, I do not prolong the period of delivery. If after a quarter of an hour the placenta is not detached I practice artificial delivery; for the patient under the influence of chloroform is liable to hemorrhage and the anæsthesia must be continued till the sutures are completed. Immediately after the delivery I wash out the uterus. When the water

returns clear and the uterus is well retracted I introduce into the vagina iodoform gauze, then I clean the wound with a sponge and a five per cent. carbolic lotion and proceed to suture the soft parts. The symphyses being brought together and well in contact, I place four deep silver sutures (which touch the anterior surface of the pubis) and four superficial ones, and then cover with iodoform and iodoform gauze. After this, the legs being brought together and held in position by a bandage, the woman is placed in a bed which I have had made—a bed which, by means of its two lateral and concave tampons, enables the pelvic bones to be kept in constant apposition—or in a "gouttière de Bonnet." This is possible in a hospital but might be impossible in ordinary practice, though I think that the simple apposition of the legs with a well-applied trunk bandage very firm in the pelvic region, or a plaster bandage such as I had for my first case, would be quite sufficient. The superiority of my bed or of the "gouttière de Bonnet" consists in the facility with which the whole body can be raised without causing the least movement of the pelvis. The sutures should be removed on the eighth day and then the patients can turn in the bed easily and without pain. Although one of our cases rose without permission on the fourteenth day and no harm resulted, I think it prudent not to let the patients rise till about the twentieth day. This, in my opinion, is the best course to follow during and after the operation. The open section of the symphysis, from above downwards and from before backwards, which may be called the French method, is an operation which does not require any complicated array of instruments. A short-bladed bistoury, firm and fine, and a probe-pointed bistoury are absolutely sufficient; but I would recommend you to have as well a chain saw and a registering separator. The chain saw will be your ultimate resource if by chance you cannot cut the symphysis. It is said that sometimes the symphysis is ankylosed. That may be so, for I do not pretend to have seen everything; but all I can affirm is that I have made a section of the symphysis on the cadavers of more than 100 aged females and have never met with ankylosis. The self-registering separator will enable you to follow the progress of the separation during the extraction. In several of our cases we have seen separation go beyond 6 cm., and in these cases consolidation of the pelvis took place as well and as quickly as in the cases where the separation did not exceed 4 cm. I think it would be unwise to go beyond 7 cm., and it is necessary to increase the slowness of the extraction and to render the pelvis immobile when the needle begins to pass 6 cm. And if I insist on this point it is less from fear of producing lesions in the region of the sacro-iliac synchondrosis than from a desire to avoid lesions of the soft parts in the region

of the vulva, vagina, and bladder. We have never observed lesions of the urethra or bladder, but in three cases we noticed after the extraction a small vestibulo-vaginal rupture, communicating, in one case at least, with the operation wound. These lacerations healed quickly and without sutures, but similar solutions of continuity might be the starting point of lesions more extensive and deeper and on that account more serious.

2. *What place ought symphysiotomy to occupy among obstetrical operations?*—To-day one can say not only that symphysiotomy is resuscitated, but that it ought to occupy a foremost place amongst obstetrical operations. It ought to occupy a foremost place, I say, because it is most essentially a conservative operation. It does not and should not injure any important organ of the mother. It can and should save the child from all grave lesions. Does this mean that statistics will never register a death either of mother or fœtus? Certainly not. But will the operation be to blame in all these cases? Symphysiotomy will be practised in cases where the application of forceps has already been tried and in cases already infected. These cases may succumb. Would they only succumb after symphysiotomy? No; embryotomy and Cæsarean section would not have given a better result. I do not deceive myself. I shall be opposed and treated as an enthusiast; but meanwhile, till some one shows me a woman who has died solely from symphysiotomy, I shall persist in my conviction. I have had the pleasure of seeing my master (M. Tarnier) support symphysiotomy with his great authority. I have a not less sincere pleasure in seeing Professor Leopold, the great performer of Cæsarean sections, adopt and put in practice our method. I see that numbers of our colleagues and *confrères* think and act as we do. That is enough; I shall leave facts to convince or convert others.

3. *What are and what will be the influence of symphysiotomy on other obstetrical operations?*—On some it will be good and on others it will be very bad. Amongst the latter I cite first of all embryotomy practiced on a living fœtus. Its day is over; we are for ever rid of this nightmare. The Cæsarean operation, followed or not by the amputation of the uterus and ovaries, will become more and more rare. Indications for this will still be found in cases of uterine and other tumours filling the pelvic cavity, but happily such cases are not very numerous. Yet even in some of these cases symphysiotomy may be indicated. Thus M. Lepage, our *chef de clinique*, has practised in this city, with success both as regards the mother and the child, a symphysiotomy in a case where a tumour partly obliterated the pelvis. In cases of contracted pelves the Cæsarean operation ought only to be recognised in cases of absolute necessity. The cases of pelves where this operation is positively indicated are so rare

that it is most likely you will never meet with one. If the relations between symphysiotomy and embryotomy and the Cæsarean operation are easy to define, the task is not so easy when it is necessary to establish the relations between symphysiotomy on the one side and premature delivery and the application of forceps on the other. Still I think one can say from to-day that symphysiotomy is calculated to render great service in cases of induced labour. It will at least prevent the induction of labour too prematurely. The fear of an obstacle from the contracted pelvic cavity will no longer haunt us, and knowing that we have the power of, and I might say the facility for, enlarging the passage we can wait calmly for the maturing of the fœtus so that its capability for extra-uterine life may be certain. A point, which can only be decided by long experience and by a considerable number of well-observed facts, is the following: Is it better to induce labour at eight months, counting on natural delivery, or to wait for the spontaneous onset of a tempestuous labour and then perform symphysiotomy? I do not feel at liberty to express my opinion on this subject yet. I have formed an opinion, but I must wait before making it known to see whether many observations will support or modify it. If symphysiotomy ought to bring to an end all labours induced too prematurely it ought also to make all forcible applications of forceps disappear. How often, in the fear of having to practice an embryotomy and in the hope of extracting a living child, have we not—have I not, I should say—exercised such long and strong traction that the result was nothing but a cephalotripsy in disguise? Symphysiotomy ought to put an end for ever to all such tractions. When a perfect application of the forceps has not been able to engage the head, after moderate tractions there is only one thing to be done, and that is, to withdraw the instrument and practice symphysiotomy as I did in my second case, where the pelvis was not rachitic and very little below the normal, but in which the fœtus was extremely large.—*The Lancet*, *February* 18, 1893, *p.* 351.

83.—THE TREATMENT OF CASES OF FIBROMYOMA OF THE UTERUS WHICH DO NOT REQUIRE REMOVAL.

By J. Knowsley Thornton, M.B.

There are a very large number of cases of fibromyoma in which the patient suffers no sort of inconvenience, and is quite unconscious that there is anything wrong. Such cases should be left entirely alone, and I hold that if they are discovered

accidentally in the course of examination for some other disease it is cruel and unnecessary to mention their presence to the patient. If you once tell a woman or her friends that she has a fibroid tumour of the womb her peace of mind is gone, and, unless she has greater character than falls to the lot of most women, she will go about seeking advice, and she will be examined and pulled about till some irritation is set up, and mischief follows. Leave it alone and it will leave her alone in a very large number of cases.

Besides these cases, which are only discovered by accident, and not because they are giving trouble, there are a considerable number in which there are trifling discomforts which may be easily relieved by a little care in diet and mode of life or by a little simple medical treatment. Let me give a few illustrations. A patient presents herself with constipation, a sense of weight and discomfort when walking or, more often, on standing or kneeling, or bending the body in some particular direction, and perhaps some bladder discomfort—either too frequent micturition or difficulty or pain—all these, or any of them, being aggravated by, or only present just before, the period. Menstruation is quite regular, is not excessive, and not remarkably painful. On examination one finds one or more distinct bosses on the uterine surface; they are hard and smooth, and not tender on pressure, and they will vary in size from a filbert to a hen's egg.

I am not speaking now of tumours which are palpable in the abdomen, but only of those which require vaginal examination for their discovery. Cases such as this have frequently come to me, in the greatest state of alarm and misery, because they have been suddenly told that they have tumour or tumours of the womb, and that they must be operated on at once. All I can say is the man who gives such advice in such a case is either a very ignorant or a very wicked person. Nature is in these cases very wise, even in her distribution of disease; the cases which least require operation are precisely those in which the experienced surgeon at once recognises the difficulty, or often the impossibility, of successful operation. The cases which urgently require surgical aid are usually (of course not always) those most suitable for radical cure by operation. How, then, shall we relieve such a case as I have briefly described? Regulate carefully the diet, restrict the red meat, forbid red wine and heavy stimulants, or better cut them off entirely, advise regular walking exercise between the periods, but not to distinct fatigue, and rest in the recumbent position during the period, or at any rate during its oncoming; and in medicinal treatment advise the patient not to take blood-making tonics, and especially preparations of iron, and to take from time to

time an ergot mixture during the intervals between the periods, but never during the flow. In nine cases out of ten this will make the patient quite comfortable, and in many cases the ergot will altogether stop increase of growth, and in some few will entirely starve the growths. I have known several cases of complete cure when the patient has been able and willing to persevere with the ergot in this way for some years, giving it an occasional rest and then taking it again.

If, in addition to the discomforts I have named, there be added pain, the ergot often gives immediate relief the pain in such cases being due to chronic congestion. When the pain is due to increase in the size of the cavity and clotting the ergot is still useful, but it will be much aided by the passage of graduated dilators; usually the occasional passage of 8, 9, or 10 shortly before the period will be all that is required, but if the tissues of the cervix are involved in the fibroid growth it may be advisable to give an anæsthetic and rapidly dilate up to 16 or so. All dilatations should be followed by a thorough cleansing of the uterine cavity with a probe armed with cotton wool and dipped into tincture of iodine. If hemorrhage be troublesome as well as pain ergot between the periods and full dilatation are still indicated, and will often suffice to check it; if they do not, hamamelis or red gum will in some cases be found very useful, but if these simple means fail the curette may be necessary as well as the dilator; to be really efficient, the scraping should be thorough, and especially upon the angles towards the openings of the Fallopian tubes.

I have almost unconsciously passed from the case which requires nothing but a little regulation of diet, &c., to those requiring some amount of surgical treatment, and this gives a good indication of the nature of the disease, for the various cases pass by such fine gradations into one another, that it is almost impossible to classify them, or to lay down hard and fast rules for treatment. All I am attempting to do is to give my general impressions. Everyone who sees much of the disease will meet with exceptional cases, which will require special study, and it may be special treatment. Hitherto I have spoken only of cases in which the growths are still small enough to be confined to the pelvis, but in practice fully half the cases met with will have already become large enough to rise above the brim, before we are asked to advise as to their treatment. If the growth is a single mass, more or less involving the whole of one wall of the organ, it is quite likely that it will give no trouble at all when once it rises into the abdomen, and that all we shall be called upon to do will be to try and keep its growth in check, by regulating diet and mode of life, and by the administration of ergot. In such cases a well fitting abdominal

belt with some elasticity is of great service; it steadies the mass and prevents its irritating the peritoneal surfaces by constant rubbing and swinging about, and it also prevents congestion by supporting and aiding the action of the abdominal muscles. In a certain number of cases even very large tumours require no treatment at all, or only such palliatives as I have been alluding to, and we must never forget that the largest, equally with the smallest, will entirely disappear after the menopause in most cases. I have watched some cases in which enormous masses have entirely disappeared a few years after the menopause.

The questions then which we must ask ourselves when discovering a fibroid are: Is it right to say anything about it at present? If it is, shall I call it a fibroid, or shall I merely say there is a little thickening, a statement giving much less alarm, and in many cases strictly true? If the patient already knows that there is a fibroid, or if one feels bound to tell her so, one must then carefully consider her symptoms, the probable duration of the life of the tumour, and her age, and I think that one should never give decided advice as to surgical interference at a first interview, unless fortified by the knowledge of a medical attendant who has been long watching the case, and has at last unwillingly come to the conclusion that nothing but surgical interference will avail.—*British Medical Journal*, *February* 11, 1893, *p.* 281.

84.—ON HYSTERECTOMY FOR UTERINE FIBROMYOMA.

By J. Knowsley Thornton, M.B.

There are many ways of performing this operation, but I shall only describe two of them, as I think the others have little, if anything, to recommend them.

Supravaginal hysterectomy, with extraperitoneal treatment of the stump, is the operation I have most often performed, and it is the one which will, I think, be found most applicable to the majority of cases. Sometimes it is necessary to remove one or both ovaries, and sometimes one or both can be left behind; theoretically, it might seem unwise to leave either of these organs in the peritoneum when their functions can no longer be properly performed, and their normal blood-supply is more or less interfered with, and the Fallopian tubes sealed at their uterine outlets; but, practically, I believe it is a distinct advantage when one or both can be left; the woman is less

unsexed, and is, I feel sure from observation of the cases in which I have been able to leave one or both ovaries, less inconvenienced by the troubles which attend the sudden and artificial production of change of life. This is especially true if she be a married woman or one likely to be married. I have in several cases performed supravaginal hysterectomy, removing the tumour or tumours, and the whole abdominal part of the uterus, in order to enable the patient to marry, and in these cases I have always, when possible, left one or both ovaries, and with the happiest results as far as the after married life is concerned. The functions of the ovary seem to be exercised in the normal way, and I presume that the ova merely drop into the peritoneum and are quickly absorbed. In some of these cases there is a slight menstruation from the remaining cervical portion of the uterus, but it rarely comes regularly or continues for any length of time.

If both ovaries are removed, and Kœberlé's wire *serre-nœud* be used for fixing the stump in the lower angle of the external incision, it is possible, in some cases, to pass the wire at once round the uterus and both broad ligaments, so that no ligatures are necessary, the tumour, body of the uterus, and appendages all being cut away in one mass; but more often it is necessary to ligature off the ovaries and tubes by transfixing the broad ligaments on each side, and then, after removing these organs, apply the wire round the base of the tumour (usually it goes on best just about the level of the internal os). When this method is adopted it is a good plan to pass the wire through the broad ligament on each side of the uterus close to the points of transfixion in each broad ligament; this steadies the wire, and prevents it from slipping up or down during tightening. In many cases it is necessary to do a good deal of enucleation before the wire can be applied; thus the capsule of the tumour may have to be incised right across the anterior surface, and the bladder carefully peeled back, and a similar enucleation may have also to be performed behind or even on both sides as well; in the latter case two layers of vessels have often to be secured, and as they are usually of great size this is, when necessary, a part of the operation requiring great care, or very serious hemorrhage may occur; the ureters are often in very close relation to the vessels, and great care is necessary to avoid including them in the ligatures or drawing them into the wire as it is tightened.

As soon as the wire is tightened and before the tumour is cut away, a strong pin should be passed through the base of the tumour just outside the wire, and a little screw cap fitted on to its sharp end. This prevents the stump slipping back into the abdomen, and holds it in the external wound. As soon as this

is applied the tumour is cut away, the stump neatly trimmed and packed round with dry antiseptic dressing, and then its cut surface is lightly smeared over with solid perchloride of iron. This is far preferable to any sewing over of peritoneal edges, which only serves to confine discharges, which are very likely to be septic, as the opened uterine cavity is in the middle of the stump. This cavity should be very carefully dried as soon as it is exposed in cutting away the tumour, and it is a good plan to clean it well out with little pledgets of cotton wool soaked in tincture of iodine or corrosive sublimate lotion. Putrefaction always occurs in the stump sooner or later when it is thus treated extraperitoneally; indeed, it is a necessity for the separation of the stump, but it is well to delay its onset till the tissues all round about are well sealed by the natural healing processes. A dry antiseptic, or rather aseptic, stump is a very troublesome thing to deal with and often greatly delays the convalescence. This sloughing and separation of the stump is the great danger in and objection to this extraperitoneal method, but practically it rarely leads to any trouble if the stump is allowed time to separate, and not pulled and messed about too much when the wound is dressed. Sometimes it is advisable to cut the wire and remove it about ten days after the operation, but sometimes it separates with the whole external part of the stump about this time or a little later. It is well, when cutting away portions of the stump, or cutting the wire, or removing the pins, to have some perchloride of iron at hand, as troublesome little hemorrhages sometimes occur from cutting a little too deeply into the stump, or from tearing at its union to the parietes, and it is better to seal these up at once, or septic absorption may take place. When the stump finally separates a deep granulating pit remains, and this sometimes takes weeks before it is thoroughly healed, and during the whole of the healing the wound should be carefully supported with strapping, or a weak place in the scar and rupture may result.

The only other method of performing hysterectomy to which I shall direct your attention is the complete intraperitoneal one, which we owe orginally to Schroeder. The early steps of the operation are the same as those I have already described, except that an elastic ligature is used instead of the wire, and is removed when the suturing of the stump is complete. The great advantage claimed for the operation is that, as in intraperitoneal ligature and dropping of the ovarian pedicle, nothing is left outside to slough and separate. After the tumour is cut away each portion of the stump is separately sutured with rows of fine interrupted points of silk, which are cut short and buried by the next row. Mucous membrane is sutured to mucous membrane, uterine tissue to uterine tissue, and finally

peritoneum to peritoneum, the sutures being applied so closely that they also completely control hemorrhage.

Theoretically this is a perfect method, as nothing remains outside to putrefy and separate and no raw surfaces are left in the peritoneum; but practically it has certain great difficulties and dangers. First, it is very difficult in many cases so to suture that hemorrhage is efficiently controlled, and, if it is at the time, oozing is very likely to come on later as the uterine tissue contracts. Secondly, it is very difficult, and in some cases impossible, to make the inside of the stump thoroughly aseptic. The opened uterine cavity must always be in the centre of the stump, and the sutures which close the mucous membrane may acquire putrid material during application, and from them putrefaction may spread into the stump. This is, of course, more likely to occur if there be some oozing and tension. Such a condition of affairs must obviously be still more dangerous than a putrid stump outside, for, though there is a possible outlet for discharge through the cervix into the vagina, it is a very uncertain one, and one very likely to be blocked.

I have, however, had some excellent results from this method in cases in which I found it impossible to get a stump for external treatment, and when cases do do well their convalescence is much quicker than by the extraperitoneal method. I have no doubt, however, that the mortality is and will be higher in any series of cases thus treated than in a similar series treated by the extraperitoneal method. I shall not occupy your time with any description of the method by complete enucleation, and suturing of large flaps of peritoneal capsule in the abdominal wound, for I can see nothing to recommend it, and it is, so far as I have seen it performed, a clumsy and needlessly bloody and dangerous proceeding.—*British Medical Journal*, *February* 11, 1893, *p.* 283.

85.—ON THE TREATMENT OF ABORTION.

By W. Reynolds Wilson, M.D., Philadelphia.

In considering the prophylactic treatment of abortion we must first combat the general affections that predispose to it, such as syphilis, nephritis, and heart-disease; while in cases of acute infectious disease, we must endeavour to prevent abortion by controlling the symptoms. In cases in which pelvic trouble is present it will be necessary to correct this. Endometritis is the direct cause of abortion in the majority of cases belonging to this class, whether the primary cause be a positional or an

inflammatory disorder. In studying the pathology of abortion we have been able to trace the lesions in the decidua to an abnormal condition of the mucous membrane of the uterus before impregnation. The origin of this condition depends, in many cases, upon gonorrheal infection. In the last few years gonorrhœa has been recognised as the origin of a large class of tubal affections; its bearing upon the causation of endometritis, predisposing to abortion, is of equal importance.

In threatening abortion, rest and the use of opium, either by enema or suppository, will meet the indications for treatment. The probability of averting the abortion depends upon the degree of dilatation of the os, the amount of hemorrhage, and the presence of uterine contractions. In actual abortion the existence or non-existence of hemorrhage determines the treatment. If the bleeding is moderate and the cervix undergoing dilatation, the treatment should be purely expectant, and ergot should be used in repeated doses as required. If, on the other hand, the bleeding is excessive, the practitioner should be prepared, not for temporizing measures, such as the use of tampons, but for the most active procedures. Those who advocate tamponing would be unwilling to hear of it as a "temporizing measure;" its effectiveness in exciting uterine contractions and furthering dilatation is a strong argument in its favour, but the dangers from the retention of the blood by the tampon and the risk of infection more than counterbalance the advantages of this form of treatment.

When serious hemorrhage has taken place, the more rapidly dilatation is completed, as a means by which the contents of the uterus can be reached and turned out, the more effective the treatment. For this reason we resort to rapid digital dilatation and the removal of the ovum by means of the finger swept around between the placenta and the uterine wall. In the latter months (the fourth or fifth month) pressure over the fundus will often expel the contents of the uterus intact. Specimens of gestation-sacs, made up of the decidua enclosing the fetus floating in the amniotic fluid and surmounted by the cap-shaped placenta, are frequent in every museum. Such specimens stand for the good judgment of the accoucheur, for, if we allow the membranes to remain intact, the ovum is in time expelled complete. If, however, the membranes have been ruptured, and, in the event of hemorrhage, they cannot be detached by the finger, the curette must be used, followed by the careful cleansing of the uterus by intra-uterine douches. Should part of the membranes or placenta be retained, without the presence of hemorrhage or fever, manual or instrumental removal should be avoided, as by the most careful procedures we cannot escape the risk of leaving some shreads within the cavity of the uterus, and, in the use of the

curette, of infecting the uterine surface. If decomposition of the retained mass has set in, with the appearance of fever, we should resort to the use of the curette.

In case shreds of decidua are retained and infection from the uterine surface has occurred, leading either to pelvic exudation or acute peritonitis, what should be our line of treatment? In the *American Journal of Obstetrics* for April, 1892, Pryor reports a case in which he had curetted the uterus for the relief of acute peritonitis following abortion. The uterus was curetted and packed with iodoform-gauze. The peritonitis subsided, the uterus became movable, and the tenderness disappeared. Polk, in discussing this paper, supported the treatment, and alluded to the further procedure of opening the abdomen, if necessary, after curetting and treating the peritonitis by drainage—a procedure reserved, fortunately, for a limited class of cases.

It remains to describe an unusual condition that has been overlooked in the category of sequelæ requiring treatment. In the course of two weeks, or even a longer time, after the removal of the placenta, with the cessation of hemorrhage and the disappearance of all symptoms, the patient is seized suddenly with bearing-down pains and hemorrhage. Examination reveals a polypoid growth protruding through the relaxed cervix. This condition is due to subinvolution of the uterus at the placental site, with the leakage of blood which has become organised. The sinuses remain open, and the congestion increase until some unusual exertion on the part of the patient induces hemorrhage. The treatment consists in the removal of the mass by the finger or by the curette, and the administration of ergot to overcome the subinvolution.—*Medical News, November* 5, 1892, *p.* 513.

86.—THE TAMPON IN MENORRHAGIA.

By William T. Lusk, M.D., New York.

Is the tampon a childish expedient in recurrent profuse hemorrhages at the menstrual epoch? In certain cases its use has been recommended by Gehrung, by Mays, and by Reeves Jackson. Still, with the profession at large, respect for menstruation as a physiological function has a dominant influence in determining treatment.

I am prepared to admit in advance that, as a rule, menorrhagia is the result of pathological conditions, viz., of inflammatory thickening of the endometrium, with increased vascularity and polypoid growths, and of enlargement of the uterine cavity, with consequent increase of the bleeding surface. The changes in the

endometrium may be due to a primary inflammation, or may be secondary to displacements, to neoplasms, to obstructions of the cervical canal, to connective-tissue changes in the uterine walls, to imperfect involution, and to retention of portions of the ovum following abortions or childbirth. In all these, and in similar instances, a rational therapeusis should unquestionably be directed to the source and origin of the evil.

But there still remain cases in which no definable cause is recognisable. The curette, uterine drainage, and internal remedies fail to afford relief. The recovery of the patient between the menstrual periods becomes more and more incomplete, and the conditions resulting from profound anæmia lead to hopeless invalidism. In such cases the question is often broached as to whether the ovaries had not best be removed. "Normal ovariotomy" is practically devoid of danger. If the removal of the tubes and ovaries is complete the hemorrhage will cease. The relief of suffering following the removal of incurable pus tubes is one of the most brilliant achievements of modern gynæcology, and is cheaply purchased by the sacrifice of the ovaries. But in the class of cases under consideration, especially if the patient be young, the loss of the ovaries has not seemed to me to be a matter of indifference. The medical men to whose care these patients ultimately fall will bear me witness that many of them subsequently display symptoms of mental and moral perversity, and that all dislike the thought that they are "different from other women."

For this reason I have been led, when other lines of treatment have proved ineffective, to resort in anæmic patients to the tampon as a means of restraint or repression at the menstrual period. By this plan opportunity is afforded for the continuous repair of the blood, and for the restoration of disordered function. At first it was with a feeling of timidity that I ventured to employ the tampon upon the first evidences of menstruation, but experience speedily showed that the practically complete repression of the menstrual flow is absolutely harmless.

However elementary it may seem, it may be well to state that the method of tamponing is not a matter of indifference. At least, personally, I have only got satisfactory results when following the procedure of the late Dr. Marion Sims. He advised, as material for a tampon, wads of cotton of suitable size soaked in carbolised water and compressed into the form of flattened disks. These, by means of a Sims speculum, should be applied firmly to the vault of the vagina. It is important that they should be placed with the flattened surface in a transverse direction, rather than in one parallel to the vagina, and that the packing should be arrested at the urethro-vaginal septum. At the end of twenty-four hours the tampon should be removed,

the vagina should be irrigated, and a fresh tampon should be introduced. When thus employed for forty-eight hours, the flow is usually ended. In rarer cases a third application of the tampon may be called for.

It is interesting to watch, as the result of this plan, the restoration of the patient to health. In time, likewise, the normal tonus of muscular structure of the uterus is restored, and the further use of the tampon ceases to be necessary.—*The American Journal of the Medical Sciences, January*, 1893, *p.* 37.

Food-Stuffs, Instruments, &c.

Brand & Co.'s Concentrated Beef Tea.—This exceedingly convenient and portable preparation contains all the soluble ingredients of the best beef. With it a cup of excellent beef tea can be made in a few minutes.

Brand & Co.'s Essence of Beef and Chicken Jelly.—These well known and valuable nutrients continue to maintain their popularity in the sick room. They form the staple of our dietaries in all cases where solid nitrogenous food cannot be taken, though its chief constituents are essential to the welfare of the patient.

Burroughs, Wellcome & Co. have submitted to us the more recent additions to their well known pharmaceutical preparations, of which the following are the most important.

Tabloids of Pure Tar.—This is an elegant and palatable preparation of this valuable drug, and cannot fail to be of the greatest use in many cases of catarrhal affections of the respiratory organs, including those of a tuberculous nature. These Tabloids will be found a welcome addition to our older cough medicines.

Iodopyrin is an important body recently discovered. It combines the properties of Antipyrin and Iodine. It has been used with success as an antipyretic in tuberculosis, and as an anti-neuralgic in cases of syphilitic headache. There are many conditions in which the combined action of Antipyrin and Iodine is desirable, and Iodopyrin in the form of five-grain Tabloids may conveniently be used in such cases.

Alumnol is an Aluminium compound which is practically perfectly stable. It has already met with much acceptance in the treatment of gonorrhœa, and allied conditions in men and especially in women. In the form of a one per cent. solution it has been applied to the affected surfaces. It may also be used as a suppository. It is supplied in Tabloids containing four grains each. It forms in a one per cent. solution a convenient, pleasant, astringent and antiseptic mouth wash.

Tabloids of Compressed Dry Thyroid Gland Powders.—Messrs. B., W. & Co. have lost no time in producing an efficient, convenient, and palatable preparation of Thyroid Extract, which will doubtless replace the painful subcutaneous method of administering this substance. Each Tabloid contains the equivalent of five grains by weight of a healthy sheep's gland. All possible precautions are taken to secure fresh and healthy

glands. The Tabloids have obvious and great advantages over all the other methods by which this remarkable treatment has hitherto been carried out, in that they contain all the active principles of the gland, are easily and agreeably taken by patients, and keep perfectly in any climate.

Peptonic Tabloids.—This is a new and improved form of Messrs. B., W. & Co.'s well known Zymine Tabloids. Each Tabloid contains the Zymine Tabloid combined in an ingenious manner with an efficient dose of Pepsin. We have made an extensive trial of them and have found them to be in every way an efficient digestive.

Dermatol.—This powerful substance has already established its reputation as a perfectly safe and efficient antiseptic in the hands of the surgeon and of the dematologist. Messrs. B., W. & Co. have now provided us with a preparation of it (Tabloids containing five grains each), for internal administration. It is especially fitted by its insoluble nature, for use as an intestinal antiseptic, and will meet a want long felt by those who wish to adopt the method of intestinal antiseptics in the treatment of diarrhœa and enteric fever.

Agathin is a recent addition to the class of synthetical anti-neuralgics, and seems destined to take a place not far inferior to that of Antipyrin. It is an insoluble substance, free from odour and taste, and is given in doses of from five to eight grains, three times daily. Experience so far has proved it to be free from unpleasant or dangerous after-effects. It has been used with success where other methods of treatment have failed in obstinate cases of sciatica, diabetic neuritis, and supra-orbital neuralgia, as well as in many rheumatic conditions. It is conveniently administered in Tabloids containing four grains each.

Cadbury's Cocoa Essence.—This preparation more than holds its own, and continues to gain in favour with the public and the profession. It is known to be absolutely pure and to have no superior for wholesomeness, cheapness and palatableness. The makers continue to give special attention to the preparation, of it, and not only guarantee that it is unadulterated, but that only the finest cacao is used in making it, and that they allow no chemical addition of any sort to deepen its colour. To Cadbury Brothers is unquestionably due the credit of making nothing but absolutely pure preparations of this pleasant and invigorating beverage.

Celluloid Pad Truss.—Messrs. Salt & Son, of Birmingham, have brought out a truss which we think worth the attention of the profession. It is in shape exactly like an ordinary truss, but the pad is made of celluloid. The rounded surface which is

applied to the skin is very thin and, consequently, highly elastic, although strong. The entire surface of the truss, spring as well, is covered with celluloid, and is therefore extremely cleanly, and not acted upon by perspiration as all leather is done away with; and the instrument can be passed through water and cleansed in a minute.

Fry's Malted Cocoa.—We have on a previous occasion called attention to the preparations of Messrs. Fry & Son. This excellent preparation maintains the high reputation of the manufacturers. It affords a fragrant, highly nutritious, and digestible beverage free from all impurities. It dissolves with readiness and without leaving a sediment indicating its freedom from more than a natural percentage of starch. For those in whom tea and coffee produce flatulence and distress the Malted Cocoa supplies an excellent and highly nutritious drink. The addition of a certain percentage of Allen & Hanburys' Extract of Malt secures its ready digestion while still further increasing its delicate and rich flavour.

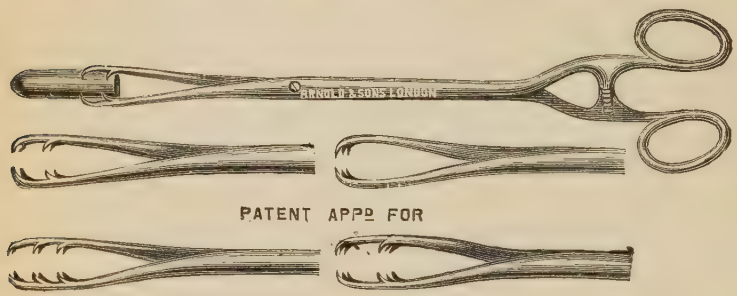
Izal.—Messrs. Newton, Chambers & Co. Ltd., Thorncliffe, near Sheffield, have recently introduced a new antiseptic fluid which they have named Izal. This substance is one of the products of coal distillation, and, chemically speaking, occupies an intermediate position between the Benzine series and its derivatives on the one hand, and the Paraffin series on the other. It is insoluble in water but forms with it a beautiful emulsion-like fluid. Izal much resembles carbolic acid in odour, but is unlike it in that it is not poisonous, and so can be used with perfect safety either as an internal medicine or as an external application. We have made a somewhat extensive trial of this substance and can confirm all that its introducers claim for it. It is a prompt and reliable antiseptic and parasiticide at the same time that its use even when applied to a large extent of surface is unattended by danger from absorption. In inveterate cases of Ring-worm of the scalp we have seen great and permanent benefit from its use. We can strongly recommend it as a perfectly safe and efficient antiseptic and parasiticide.

Lactopeptine.—Mr. J. M. Richards, 46, Holborn Viaduct, E.C., has submitted to us a sample of this well known preparation. Many years' experience of the use of Lactopeptine has confirmed us in the opinion that it is one of the most trustworthy and efficient of the aids to the digestive process. In all forms of nervous and atonic dyspepsia whether in young or old persons, Lactopeptine is an invaluable adjunct to our resources. We have rarely seen a case suitable for treatment by Lactopeptine which has not derived great benefit from its use.

Maltine with Cod Liver Oil (The Maltine Manufacturing Company).—This is an excellent specimen of this class of food substitute, and compares most favourably with the other numerous preparations of Cod Liver Oil. The nauseous taste and odour of the oil is completely disguised and the most fastidious can take it without trouble.

New Form of Bullet Extractor (Suggested by Surgeon-Major Macnamara).—Finding that all existing Bullet Forceps were unsuitable and unsatisfactory for the extraction of the new compound bullet, Surgeon-Major Macnamara suggested to Messrs. Arnold & Sons (West Smithfield, E.C.), a modified form of grip Forcep, and upon trial it has been found to answer in every way better than any extractor yet invented.

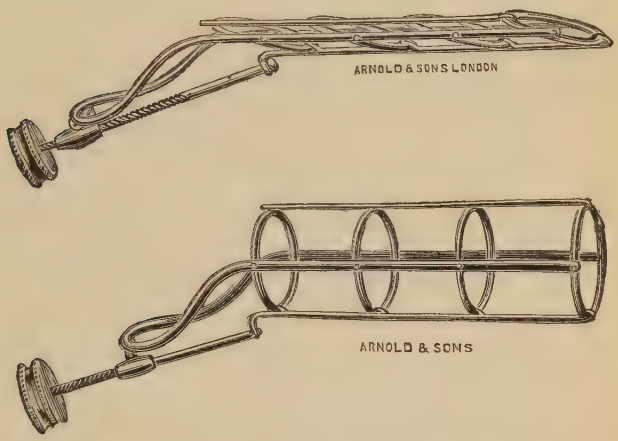
These extracting Forceps overcome every difficulty hitherto presented, and are made in various forms as depicted in the drawing, but the model found most serviceable is the one with eight teeth. This form of grip firmly grasps and securely holds a bullet in *whatever position* it may be found; with this instrument



it is impossible for the bullet to rotate or slip, whereas with forceps recently introduced, the bullet is only retained when caught in *one* position and then not firmly held; another important feature, the end of this improved forcep is perfectly smooth and forms a probe, which cannot possibly pass beyond the bullet, and therefore may be described as a bullet probe and extractor combined, possessing this manifest advantage, that it is impossible to tear or injure the tissues, &c. This particular grip will extract not only the new, but every form and shape of bullet or other foreign substance, better than any forcep at present known.

New Vaginal and Rectal Speculum (Patented), by Dr. Duke, Cheltenham (late Dublin).—A speculum combining portability and cleanliness will be found in the instrument

depicted in the accompanying illustration. It differs in the principle of its construction from other forms of vaginal speculum, and when not in use can be folded flat and carried in the pocket. It is easy of introduction, and when open the



vagina is expanded equally in its full length, affording a good view both of the vaginal walls and also the os and cervix uteri. The instrument has been most neatly made for me by Messrs. Arnold & Sons (of West Smithfield, E.C.), who also keep in stock a rectal speculum constructed on the same principle.

Oil of Eucalyptus Globulus (Platypus Brand).—The Tasmanian Eucalyptus Oil Company are now manufacturing upon a large scale a particularly pure Eucalyptus Oil. The extensive use to which this agreeable and efficient antiseptic is now put for sanitary as well as for purely medicinal purposes make a reliable preparation of it a great desideratum to the profession as well as to the general public. The specimens of oil submitted to us are of the highest quality, and possess in a marked degree that agreeable fragrance which is peculiar to the best Eucalyptol preparations. No more convenient, safe, and efficient antiseptic and deodorant can be found for use in the sick room, and its medicinal value is now fully established. The Tasmanian Company has done great service in placing such an excellent preparation in the hands of the public. For internal administration the Platypus Eucalyptus Pastilles are in every way admirable.

Oppenheimer's Bi-palatinoids.—In a former volume of the *Retrospect* we took occasion to draw the attention of the profession to the Palatinoids introduced by Messrs. Oppenheimer, Son & Co., and to speak favourably of their quality and ingenuity of construction. In their Bi-palatinoids, Messrs. Oppenheimer have made a decided advance in their elegant and reliable method of administering drugs. The Bi-palatinoids have been introduced to ensure the most efficient exhibition of drugs, which while requiring to be administered in association with other drugs, should not be allowed to come into actual chemical combination until they arrive in the stomach. Messrs. Oppenheimer's Bi-palatinoid of Blaud's pill is an excellent example of their new contrivance and will be found a most acceptable and convenient method of administering this invaluable hæmatinic. The advantages of the bi-palatinoids and palatinoids over the other and more familiar forms in which medicines are usually administered, are at once obvious; and, above all, the drugs dispensed in this way by Messrs. Oppenheimer are, as analysis shows, of the highest attainable purity, and of exact precision in dose. The ingenious construction of the preparations gives them a shape which enables them to be swallowed by the worst of "pill-takers" with ease, and the complete manner in which everything disagreeable to taste or smell is obscured, makes them a commodity in medicine which all will at once appreciate. We can heartily commend them to our readers as being in every way what they claim to be, as efficient, elegant, and exact preparations.

Cream of Malt with Cod Liver Oil and Hypophosphites (*Oppenheimer*).—This is an excellent preparation combining in itself the principles of Cod-Liver Oil, Extracts of Malted Barley, Malted Wheat, and Malted Oats, and Hypophosphate of Lime and Soda. It is palatable and readily taken by children, in whom it serves the double purpose of a highly nutritious food and a powerful digestive.

Tabellæ of Compressed Drugs (Messrs. Allen and Hanburys).—These well known preparations continue to afford an elegant, palatable, and precise method of administering nauseous or bitter drugs. The tabellæ of Aloin, Cascara, and Quinine are especially serviceable, the disagreeable characters of the drug being in each case entirely obscured by the method of preparation, while their therapeutic efficiency is in no way interfered with. We would notice especially the tabellæ of Sulphonal, which are prepared by Messrs. Allen & Hanburys' disintegrating process, by means of which the highly insoluble Sulphonal is made readily soluble, and so the inconveniences

which not unfrequently arise from its delayed absorption are entirely prevented.

Bynin Emulsion (*Allen & Hanburys*).—This is an improved emulsion of Cod Liver Oil with the Hypophosphites in combination with Bynin and Allen & Hanburys' Mother's Milk Food. It is therefore a complete food in itself. The Bynin Emulsion is prepared in such a manner that the oil does not separate even after prolonged keeping, above all it is so prepared that all unpleasantness in odour or taste is so thoroughly overcome that its flavour is quite as agreeable, not to say attractive, as that of a well made custard, the presence of Cod Liver Oil, of which the preparation contains more than fifty per cent., is in fact made quite imperceptible even to the most sensitive palate. There is no doubt that the Bynin Emulsion is a most valuable addition to the class of nutrients to which it belongs, and is certainly equal if not superior to any of its competitors.

First Food for Infants (*Allen & Hanburys*).—This is an excellent substitute for human milk, containing as it does all its constituents in their natural proportion. In our hands it has proved of the greatest service.

Hypoderms.—Under this name Messrs. Allen & Hanburys supply soluble tablets for the immediate production of Hypodermic injections. Their portability, complete and ready solubility, and precision of dose have secured for them a wide and well deserved popularity. They are an invaluable aid in all emergencies.

The Liquor Carnis Company, of 55, Holborn Viaduct, E.C., have submitted to us a sample of a new substitute for Cod Liver Oil which they have named Virol. We have made an extensive trial of it especially amongst invalid children, and find it to be an excellent and popular form of food for them. It has an agreeable taste and does not destroy the palate for the more ordinary aliments. Virol contains in proper proportion all the constituents of an ordinary mixed diet, it is easy of administration, digestion and absorption, and so cannot fail to be of the highest utility in a large class of wasting disorders. There is no doubt that in Virol, The Liquor Carnis Company have made a distinct advance upon previous attempts to supply a pleasant and efficient substitute for Cod Liver Oil.

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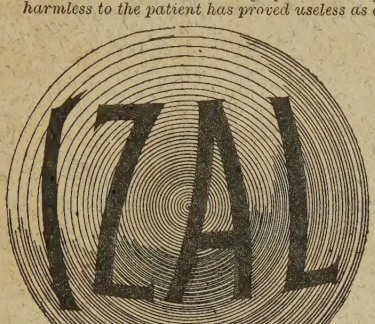

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The main advantages of using many drugs in the form of Tabellæ are as follows:—

(a) They are very **portable.**

(b) They are readily **swallowed.**

(c) They are quickly **dissolved** or **disintegrated,** thus ensuring the speedy action of the drug.

(d) The doses are exactly measured.

(e) Their advantages are obvious in the saving of much time and trouble.

(f) The Drugs are of guaranteed purity.

Those formed of medicaments, generally applied to the mouth and throat, are made as heretofore, to dissolve slowly; the affected surfaces are thus constantly brought into contact with a solution of the Remedy. Those made of sparingly soluble substances such as **Bismuth, Sulphonal,** etc., are so prepared as to readily **disintegrate** on coming in contact with moisture.

The Journal of Laryngology, Rhinology, and Otology, January, 1893, writes, "It is this solubility of Messrs. Allen and Hanburys' Compressed Tabellæ which makes them so distinct from other preparations in the market."

When first introduced by us the importance and superiority of these **Disintegrating Tabellæ** were quickly recognised as is shown by the number of would-be imitations now offered for sale. Our discovery has received the highest commendation both from the press and the medical profession, whilst the large and constantly increasing demand for Compressed Tabellæ proves beyond doubt their popularity.

A FEW OF THE MORE IMPORTANT TABELLÆ ARE—

Acid Arseniosi, 1-100 gr.
*Aloin, 1-10, 1-4, 1-2 gr.
*Aloin Co.
*Aloin Co. *c.* Cascara.
Ammon Bromid.
Ammon Chloriu.
Ant. Acid.
Antifebrin.
Antipyrin.
Bismuth Soda et Zingib.
Calomel, 1-10, 1-4, 1-2, i gr.
*Cascara Extract ij gr.
Conf. Aromat. *c.* Opio.
Exalgine.
*Hydrarg. *c.* Creta.
Ichthyol.
Ipecac. Co.
*Laxative.
Lithiæ Co.
Morphiniæ Mur.
Morphiniæ Sulph
*Pepsin.
*Peptonic.
Potass Chlor.
Potass Permang.
*Quininiæ, gr. 1-10 to gr. v.
Rhei Co. Pulv.
Rhei Sodæ et Zingib.
Rhinitis *(Central Th. Hosp.)*
¶ Saccharin.
Salipyrin.
Salol. [aa gr. j.
*Santonin et Calomel.
Sodæ Bromide.
Sodæ Chlor.
Sodæ Salicylat.
Strophanthus Tinct., mij.
†Sublimate.
Sulphonal.
Sulphur Co.
Voice (Pot. Chlor. Borax et Cocaine).
*Warburgii (Tinct. mxxx.).

¶ Saccharin Tabellæ, a sweetening agent for the food and beverage of those suffering from diabetes, gout, dyspepsia. In bottles at 9d., 2s., and 4s. retail, or 7s. 6d., 21s., and 42s. per doz. to the profession.

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*In compliance with the popular demand for medicines in a palatable and convenient form, we are coating with sugar all those Tabellæ containing bitter and nauseous medicines, such as **Aloin, Cascara, Quinine, Laxative,** etc. (marked with an Asterisk). No bitterness is perceived when swallowed, and these valuable, though nauseous, remedies are thereby taken not only without distaste, but with pleasure.

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All Tabellæ are supplied in bulk and in Vinaigrette Bottles for the pocket at 1s., 2s. 6d., and 4s. 6d. each, 2s., 21s., and 40s. per doz. to the profession.

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See also Pages i, ii, iii.